



# COAL AGE



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No. 3

## Our Export Coal Trade

Are we taking advantage of all the opportunities now being given us to increase our export coal trade so as to make the United States the greatest nation in this particular field, as it is in output, consumption and coal reserves?

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THE coal tonnage sent overseas during the month of June would seem to show that at last we are reaping the benefit of our more or less persistent effort. The export tonnages last month from our principal ports, compared with those of September, 1914, are as follows:

	June, 1915	Sept., 1914
Hampton Roads.....	605,000	433,000
Baltimore.....	325,000	128,000
Philadelphia.....	105,000	59,000

Our coal exporters are making strong endeavors to increase their sales of coal abroad; it is equally true that in this work there is vast room for improvement in both efficiency and effort. The results of this unexampled increase in export tonnage are: First, the people in foreign countries are learning that they cannot depend on obtaining sufficient shipments of British coal owing to various causes resulting from the war. Second, they have also learned that United States coals can be had that will do the work required just as well as any but the very best Welsh coal (this being entirely out of the market at present). Third, United States coals can now be bought in many foreign markets more cheaply than can British fuel.

For these reasons inquiries for our coals have poured in upon us, and the fact that our exports during the past six months have not been greater is due to the scarcity of ships' tonnage as well as to the indisputable truth that our exporters are not accustomed to selling at delivered or c.i.f. prices.

The real fight for the coal-export trade of the world will come after the war is over.

Are we preparing for that time, and do we intend to try to keep what trade we may secure in the meantime? The present situation is going to be of great benefit to us then. Other people will have learned—because they are now being forced to learn—how to buy and to use our coals, and they will then be aware that the latter are of excellent quality.

But the British and German coal interests are not going to give up without a fight the foreign business that they have spent many years and much hard work and money in acquiring. Even now the British exports for the first five months of the year show a decrease of 35 per cent. over the corresponding period of the previous year (for May the decrease was 39 per cent.). But it must be

remembered that a vast tonnage, probably 10 to 12 million tons per year, has been withdrawn from American trade and is being used by the navies of the allied governments. It would seem a wise plan, therefore, for our coal-sales agencies to begin at once to plan how they may best keep the foreign business they are now having presented to them. Wide avenues of trade are being opened to them, and they are learning the ocean-transportation end—the key to the whole export matter.

All of this will help us immensely when the real fight for commercial supremacy comes on after the war. But we must systematize our knowledge and our methods and not allow our efforts to relax. We have much to learn from the British shippers who in 1884 were exporting more coal than we are now doing.

The large coal companies should work together more. What benefits one now will benefit all in the end. At present these companies are fighting each other in every way—a fact that the foreign buyers have learned and are making use of to their own advantage.

Few of our exporting companies know foreign trade conditions. Grave errors have been made in selecting foreign representatives, nearly all of whom had everything to learn regarding foreign customs and usages—few of them being able to speak any language save their own.

Why would it not be both profitable and wise for the Bituminous Coal Association or any other association of coal sellers and operators interested in the export trade, such

as the Smokeless Coal Operators of West Virginia, to establish a bureau of information regarding foreign trade? The purpose would not be to sell coal, but to gather all available and useful data on foreign coals and markets, prices, analyses, uses, buying and selling methods, specifications, ocean freights and ships, dock and harbor facilities, names of the large users and buyers, etc.? Such a bureau could be made of immense value to those to whom the information gathered would be available; it need not interfere in the least with the selling activities of any company.

Such an office could be used to disseminate general information to foreign buyers and users regarding our coals; it could be made a headquarters for all foreign buyers coming to this country. *Coal Age* would be glad to assist in the establishment of such a bureau and to render every possible aid in obtaining information for it.

**THE WAY TO**  
have our share  
of the coal-export  
trade is to go after  
it intelligently and  
systematically—  
selling coal of good  
quality at fair  
prices. Such a cam-  
paign would win.

Written by F. R. WADLEIGH

## Ideas and Suggestions

### Prohibition from a Miner's Viewpoint

BY AN OHIO SUPERINTENDENT

It appears to me that West Virginia is likely to suffer for want of miners if something is not done to make amends for the suppression of the liquor traffic in that state. As evidence of the unpopularity of that measure and its effect in driving away miners I submit the following letter:

Scarbrow, W. Virginia.

Mr. O. P. Rater, Superintendent,  
My Dear Super:

I hope you forgive me, because I apply to you for me and Martin again a job. Here is a bad time and bad place for us. Too much and too very much dry. These place back in the West Virginia state now work every day. But we dont care, if your mine work three days a week we should like to come back in your again coal mine. If you can give us again some place for work, maybe wet dog hole, I dont care. Who want to live here and work these mines, alright, but no good for us. Too wild and too very dry. Please write me at once and give we greeting to Mr. Bass. Remaining Yours very truly,  
STEVE UNGARY and MARTIN MANCO.

Something news on other side Mr. Super.

I dont drink here since September 30, only coffee and water, no whiskey, nothing. Please write me right away yes or no. The trouble is too much dry and too very much far from Mingo Junction.

Me and Martin no get job close to some place where we can get some whiskey we pretty soon go back and join Franz Josef's army. Lots of whiskey there now.

This is a true copy, word for word, of a letter I received from two Austrians who for a time were working in southern West Virginia. Now the thought comes to me, are we doing right by these miners? The great state of West Virginia is dry; others of the large coal-producing states of the Union are in the dry column or are straining every effort to get there. The curse of intemperance comes with these foreign miners from the East. We stop them from buying liquor here, from frequenting the saloons, from having the only kind of a good time they know, and what are we giving in return? What are we giving them to take the place of this habit?

We cannot dodge the issue—human nature is the same all the world over, and it is a scientific fact that if you would put an end to a habit of any kind in a man, woman or child, you must give them something in place of it. You must divert their minds into channels along other lines, give them some place with other attractions, where they can spend their leisure hours in enjoyments that will tend to make them forget the habit they have renounced.

Now do not think I am in favor of saloons or of the liquor evil, for personally I am and have been a total abstainer and hope to see the day when it will be illegal to manufacture or sell alcoholic liquors as a beverage in the United States. Nevertheless, I stick to the point and believe that we have no right to deprive these miners of their enjoyments, liquor drinking, or of their poor man's club, the saloon, unless we can give them in return something besides work that will take the place of these evils.

West Virginia coal-mine operators have done much for the uplift and social betterment of the mine worker, but

much yet remains to be done. Nation-wide prohibition is coming in the United States, so I desire to give this word of warning to coal-mine operators and officials: Be prepared to give the mine workers, by education and otherwise, something to fill the void or be prepared to face an evil from the foreign miner that will be worse than his liquor habit.

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### One Method of Reducing Coal Mine Accidents

By F. M. McDANIEL\*

From an examination of the fatal accident reports of the different coal-mining companies in the large coal-producing states for the past few years, it will be noted that these accidents are mainly owing to contributory negligence on the part of the miners and that the greater number of these fatalities are due to falls of coal and slate.

No doubt many of these accidents could be avoided if the miners would exercise and put into practice the safety precautions with which they are familiar and obey the instructions given by the mine foremen, firebosses and other underground officials.

Shakespeare has said, "I could better teach twenty what were good to be done than be one of the twenty to follow mine own instructions." So it is with the average coal miner. He is familiar with and recognizes the different dangers met with in coal mining and the methods and ways of eliminating possible accidents from these dangers. Too many miners, while waiting on empty cars or for their places to be cut or what not, will sit about telling their "buddies" how much they know about the prevention of accidents, when they should perhaps at that very moment better be in their own working places taking down a loose piece of slate, placing a prop or complying with some other order given by the mine foreman or one of his assistants.

The miner has too much of a tendency to gamble with chance. Although he may know that, even when all safety precautions have been complied with, mining still remains a hazardous occupation, he will deliberately work under loose slate or coal and will do other things that he knows are making his work perhaps doubly dangerous. He fosters the belief that because he has worked under conditions similar to those under which he is now working and has escaped injury he will escape again. He bases these makeshift arguments on a bad precedent and neglects to consider that his former escape was probably owing only to a strange caprice of fate that is not always repeated under similar conditions.

If the miners could be taught or induced to put into practice what they really know concerning safety measures and the different precautions against mine accidents; to give stricter obedience to the state mining laws, the com-

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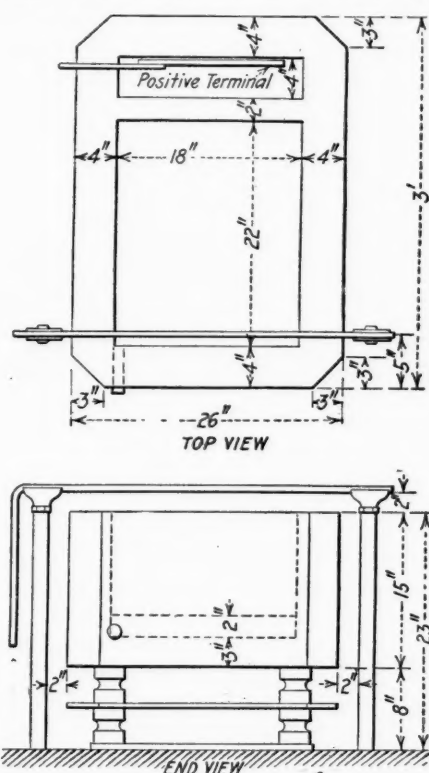
pany rules and foremen's orders; to weigh carefully and decide upon the value of the safety information readily accessible; to take more pride in their working places; to think less of getting the almighty dollar by taking risks that are not required or expected of them, and to quit trying to load as much or more coal than the other fellow by the expenditure of less muscle and brains, no doubt the number of both fatal and nonfatal accidents in this country could be materially reduced.

## An Electrolytic Forge

BY M. D. COOPER\*

An electrically operated forge for use in mines is illustrated herewith. A forge similar in construction to the one illustrated in the figure has given satisfactory service underground for over 6 yr.

Essentially, the forge consists of a concrete tank mounted on suitable insulation, equipped with an iron plate for use as a positive terminal and supplied with



TOP AND END VIEWS OF THE ELECTRIC FORGE

the necessary wiring. The tank is 36 in. long, 26 in. wide and 15 in. high. The walls are 4 in. and the bottom 3 in. thick. For the purpose of preventing the piece to be heated from coming in contact with the positive plate and thereby causing a short-circuit, the tank is divided into two compartments by means of a 2-in. wall. This wall, however, does not extend to the bottom of the tank; there is an open space 2 in. high between the bottom of the wall and the bottom of the tank to allow the passage of current and also to facilitate draining when necessary. A drain pipe stopped by a wooden plug is provided as shown in the figure.

The larger compartment of the tank, in which heating is done, is of ample size for most underground require-

ments. A smaller size was satisfactory for heating rivets only, but experience has shown the necessity for a tank of the dimensions given in order to heat pieces longer than the ordinary sizes of rivets. In the smaller compartment of the tank a wrought-iron plate 14 in. long, 9 in. wide and  $\frac{1}{2}$  in. thick is placed, to which wire carrying the positive current is attached.

By means of two sets of four insulators in each set, the tank is insulated from the earth. The foundation is brought to the floor level. On the foundation is placed an iron plate of somewhat shorter dimensions than the bottom of the tank. Near each corner of the plate is located an insulator as shown. A second plate a little longer and wider than the first is placed over the insulators.

It has been found that this upper plate must extend over the lower one in order to prevent any drippings falling from the upper to the lower plate. The second set of insulators is placed directly above the first, and the tank is then supported on the upper set. In general, the insulators have been found to last about a year, when they must be taken out and cleaned or, if cracked, replaced by new ones. To change all of the insulators requires only a few minutes.

The return current is carried by a piece of 0000 trolley wire, which has been found large enough in current capacity and stiff enough to support the pieces to be heated. The wire is held by trolley hangers, rigidly supported near each side of the forge by pieces of  $\frac{1}{2}$ -in. pipe.

In operation the tank is filled with water to a depth of 6 in., which requires about 12 gal. Then about 5 lb. of common salt is added, the solution of salt and water forming the electrolyte. The current, which is supplied at 250 volts and must always be direct current, having been turned on, the piece to be heated is held in a pair of tongs the handles of which are rested on the piece of trolley wire supported across the tank.

When the rivet or other metal to be heated is lowered into the electrolyte, current will flow from the positive terminal to the piece held in the tongs, which then becomes the negative terminal. A layer of hydrogen is formed around this terminal, causing a high resistance at the surface of the piece it is desired to heat. The resistance results in the development of heat, the amount being proportional to the  $I^2R$  loss.

In this manner a rivet or other similar piece of metal may be brought to a high temperature in a few seconds. After the current is shut off, the material may be quenched by thrusting it into the same solution in which it was heated.

## He Won (?)

Two little boys were playing on the sidewalk—or rather one little boy was playing; the other couldn't very well, as he was all swathed in bandages, smelled of arnica, and was generally disfigured. A kind-hearted stranger curious to know what had happened asked how he had been hurt. The larger boy answered for the injured one: "We were playing a game, who could lean out of the window the farthest, and he won."

Doesn't this present a true picture of the coal operator who cuts prices below the cost of production or who cuts the cost of production by butchering his mine?

\*Ellsworth, Penn.



# Wire Rope and Its Application\*

By BRUCE W. BENNETT†

**SYNOPSIS**—To be of value wire rope must be of known quality. It must possess strength, flexibility and tenacity in well-balanced proportion. To secure the results desired great care is exercised throughout the entire process of manufacture. Carelessness or ignorance on the part of the user may render useless the utmost pains and skill of the maker. The wise purchaser therefore studies the conditions of service involved and adapts his rope and apparatus to them, thus securing maximum service for a given outlay.

Although wire rope has been used as a mechanical appliance for nearly 5000 years, it is commonly regarded as a modern invention. During the long period that has elapsed since the first records of its use, wire rope has passed from a crude to a highly developed product, and the purposes for which it is employed have increased many-fold.

In no other branch of industry is there a greater demand for material of proven integrity than in the production of wire rope, for it might be truthfully said that it is born to be abused. It is subjected to tremendous

is given several annealings, or heat treatments, which when properly conducted restore it to its original state of toughness and ductility, as well as bringing back its elasticity.

## HEAT TREATMENTS ARE CAREFULLY CONDUCTED

The heat-treatment processes are conducted with great care, and nothing is left to chance. The electric pyrometer insures that the wires receive just the degree of heat necessary to produce the desired result. A further check on these processes is secured by means of the microscope.

The very process of drawing the rope wire to a certain extent furnishes proof of the latter's quality, but careful tests for tensile strength, elongation and torsion are conducted by experts. Each and every coil is tested before it is allowed to enter the rope mill.

When the wires are taken into the rope mill they are wound upon spools and placed in a machine which so operates that they are laid into strands composed of 7, 19 or more wires, without any torsion being placed upon them. Each wire receives a heavy lubrication in this process. The strands are then laid about a heavily lubricated center usually composed of hemp, in much the same manner as that in which the strands themselves are built

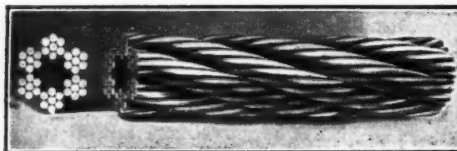


FIG. 1. A 6x7 HAULAGE TRANSMISSION AND STANDING ROPE

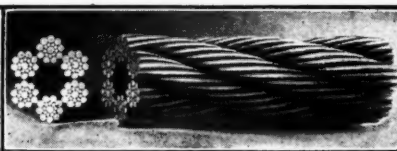


FIG. 2. A 6x19 SEALE CONSTRUCTION, TWO SIZES OF WIRE



FIG. 3. A 6x19 HOISTING ROPE WITH THREE SIZES OF WIRE

tensile stresses, constant bending, abrasion, corrosion and the peculiar internal changes or molecular readjustments produced by vibration.

Wire rope as made today is the product of the metallurgist and the mechanic. Every process—from the smelting of the ores, the rolling of billets and rods, the cold drawing of the wires and the many heat treatments they receive down to the stranding or laying up of the cable—is conducted with mathematical precision. The chemist sees that only steel of the proper analysis is used, the electric pyrometer insures uniformity in heat treatments and the various testing machines clearly establish the quality of the product before it is allowed to leave the mill.

Steel for the manufacture of ropes commonly used in the coal fields is the product of acid open-hearth furnaces, and the utmost care is exercised throughout the process of manufacture to insure that the finished product shall be of the desired analysis and of sound structure.

After the material has been cast into ingots and rolled to the form of rods, it is thoroughly cleaned and drawn through dies to the required diameter. Drawing greatly increases the strength of the wire and decreases its elongation under test, but if continued beyond certain well-defined limits, will make the material so hard and brittle as to be useless. To prevent such a contingency the wire

up, the same means being employed to eliminate torsional stresses.

The trade names which have been given to wire ropes of varying degrees of tensile strength are iron, crucible cast steel, extra strong crucible cast steel, plow steel and monitor plow steel. The tensile strengths will range from a minimum of 60,000 lb. per sq.in. of cross-section of stock for iron to approximately 280,000 lb. per sq.in. for monitor plow steel or its equivalent. The ropes most commonly used in the coal field are of the crucible cast steel grade and will approximate 200,000 lb. per sq.in. in tensile strength.

Most wire ropes have a hemp center, the name given to designate various types of fibrous material. In places where ropes have to withstand severe heat, soft-iron centers are substituted, and where crushing stresses are encountered or additional strength must be secured, steel centers are adopted. Asbestos centers, while heat-resisting, rapidly disintegrate and are of practically no value.

It is important that only good centers be used. If the hemp center disintegrates or breaks, the strands have a tendency to fall inward, causing the rope to collapse. When one or more strands do this, even tension is destroyed, and those strands having to bear the greatest stress will probably break.

The lay of a rope is the direction in which the wires and strands are twisted. There are three standard kinds of lay—right-hand lay, left-hand lay and Lang's lay, commonly known as lang-lay. In a right-hand lay the wires

\*Abstract from a paper presented before the Shamokin and Mt. Carmel Mining Institute.

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are twisted to the left and the strands to the right. In a left-hand lay just the opposite is true. In a lang-lay rope the wires and strands are both twisted in the same direction.

The length of lay of a rope is the distance from the crown (top) of a strand to the next crown of the same strand; that is, one complete twist or revolution of 360 deg. from the crown of one wire to the succeeding crown of the same wire. The standard length of lay for hoisting rope is 7 diameters, which in the case of a 1-in. diameter rope would be a 7-in. lay. Shortening the lay of a rope adds to its flexibility. Increasing the length of the lay increases the stiffness.

Five different types of construction ordinarily employed in laying up wire rope are—a 6x19 3-sized wire; a 6x19 1-sized wire; a 6x19 Seale patent construction with 2-sized wire; a 6x16, known as cable construction, and 6x7 haulage rope.

The ropes most frequently employed are of the 6x7 and 6x19 construction, or to more fully express the foregoing designation, a rope composed of 6 strands of 7 wires each about a hemp center or 6 strands of 19 wires each about a like center. The 6x19 construction is modified as to disposition of the metal in several ways. The first and earliest type of construction was that in which all of the 19 wires in one strand were of one size, but for most

advantageous that this bucket should not rotate or spin, thus endangering the lives of the shaft-sinkers. To avoid such rotation, a special lay nonspinning rope has been built. This is illustrated in Fig. 4.

A nonspinning wire rope consists of 18 strands of 7 wires each in two layers. The inner layer is composed of 6 strands laid up in left-hand lang-lay about a hemp center. The outer 12 strands are regular right-hand lay. The inner and outer portions of a rope thus constructed oppose each other in their tendency to twist or untwist, with the result that the rope as a whole is inert and evinces no inclination to rotate when an end is hanging free. A nonspinning rope may therefore be used with convenience and safety for operating a bucket in shaft-sinking or for other purposes where a tendency to spin would be undesirable.

#### THREE PROPERTIES ARE DESIRABLE

The three properties desired in a wire rope are strength, toughness and flexibility. These should exist in well-balanced proportion. The rope must have such strength that it will sustain the load with a reasonable factor of safety; it must have such flexibility as will reduce the bending stresses to a practical minimum; the wires must be of such size as to safely withstand a reasonable reduction in area due to abrasive wear; while they must be

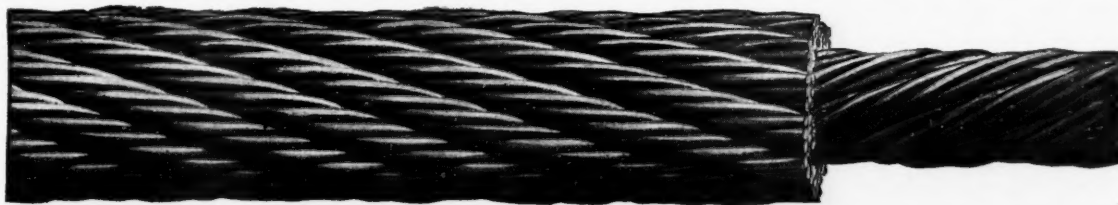


FIG. 4. A NONSPINNING ROPE. A FREE END OF THIS ROPE HAS NO TENDENCY TO REVOLVE OR SPIN

purposes what is known as the 3-sized wire 6x19 rope is preferable, as considerably more metal can be used per given diameter, thereby increasing the strength of the rope and its ability to withstand abrasive wear.

The 6x19 Seale patent construction is one in which all the outer wires of each strand are considerably larger than the inner wires. It is designed exclusively for work where abrasion must be considered the factor of greatest importance. A 6x16 construction is sometimes employed where the 6x19 3-sized wire construction does not quite meet the requirements as regards abrasive wear and where the 6x19 Seale patent type is considered unadapted.

The type frequently employed in the coal regions is known as a 6x19 standard hoisting construction. Each strand is composed of 19 wires—the 7 inner wires of one size, while the 12 outer wires are of two different sizes. Such a construction gives the greatest area of material that it is possible to obtain and at the same time secures a more flexible rope.

It is good practice when once a construction which is giving satisfactory service is secured to stick to it. On slopes and planes a limited variation as to construction is possible. For instance, where there is heavy friction and abrasive wear constructions with larger outer wires might be tried out with good results, provided of course that the drums and other conditions are suitable for such a change; for increasing the size of wire in a certain diameter of rope tends to stiffen it.

For certain uses, such as shaft sinking where a wire rope is used to hoist an unguided bucket, it is highly

tough in order to resist to the very last degree the tendency to crystallize or become brittle, either from severe or repeated bending or from vibrations due to rapid operation. No one of these properties can be developed to the maximum without causing a serious reduction in the value of the others. For instance: The greater the strength of the wires the less will be their toughness and pliability; the greater the flexibility of a certain construction the less its ability to withstand abrasion.

In each and every application of wire rope a careful study must be made to determine which of the before-mentioned factors is of the most importance. The grade and construction of rope which will most nearly fill the existing requirements can then be readily determined.

Many installations of rope-using equipment include sheaves and drums which were provided without thought as to how they would influence the life of the rope. In some instances these conditions are the result of ignorance; in others they arise from a lack of space or power, or the cost of both. Sheaves and drums of generous proportions invariably tend to lengthen the life of the rope.

Some users of wire rope insist upon buying a size and grade which do not insure a sufficient margin of safety. The result is that the rope is continually overstressed, and any sudden overload is apt to produce broken wires or strands, or may even rupture the rope itself. If the machinery will not permit of the use of the proper size of rope, then a grade of increased strength must be resorted to, care being taken to see that such a change—as for instance, from crucible to plow steel—can be made

without unduly increasing the tendency of the comparatively stiffer wires to crystallize in service.

Sometimes cases are found where too large a size of rope, both from a standpoint of necessary strength and a limiting size of scoring on sheaves and drums, is used. When a man uses too large a rope he does so principally through ignorance of the essential features of good rope practice or because in his desire to favor the rope from a standpoint of tensile stress he inordinately increases that due to bending. The result is that he nearly always pays more, initially as well as ultimately, for his rope than he would if he had secured the proper size for his purpose.

Ropes should never be unwound by laying the coil or reel flat on the ground and pulling off a single coil at a time. This process puts a certain amount of tension or torsion in every convolution, and consequently the rope will show a greatly increased tendency to twist and kink if dragged or suspended with a free end. If a kink is once

be dependent upon the safety of the rope, a factor not less than 7 and sometimes as much as 10 may well be employed. There is no practical justification for exceeding these figures.

As the name implies, the bending strain is the strain produced in the wire when the rope is bent around a drum or sheave. The stress is that force which produces the strain. Generally speaking, for ropes 1 in. in diameter and over, it is best to use sheaves and drums of such size that the bending stress will not be more than  $\frac{1}{20}$  of the ultimate strength of the rope. For smaller ropes, an allowable bending stress of from  $\frac{1}{10}$  to  $\frac{1}{15}$  may be considered—preferably the latter.

Since the size of sheaves and drums is generally fixed, we must determine what construction will most nearly bring the bending stress within the desired limit, taking into consideration at the same time the question as to whether or not that construction will stand the combined



FIGS. 5, 6 AND 7. SHOWING THE THREE STEPS OF SOCKETING A WIRE ROPE

pulled into a rope it can never be removed. Furthermore it greatly weakens the rope at that place. Trouble because of improper unwinding is exceedingly hard to locate, although it is encountered quite frequently.

It is necessary in using wire rope to have the proper amount of space between the lead sheave and the drum in order to avoid too sharp an angle. The angle between the line from the center of the sheave to the center of the drum and that from the center of the sheave to the outer side of the drum should not exceed  $1\frac{1}{2}$  deg.

#### PROPER FACTOR OF SAFETY

In all rope calculations it is necessary that the rope under consideration shall have a factor of safety of from 5 to 7. It is customary to calculate the proper working load by dividing the breaking strength of the rope by the safety factor desired and then subtracting from the quotient obtained the net bending stress expressed in tons. A safety factor is just what its name implies, and incidentally it serves partially to provide for the certain loss in strength due to reduction in the size of the wires that have become worn in service. For ordinary work a factor of safety of 5 is sufficient, although if human life is to

forces of bending and abrasion better than one in which the bending stress will be relatively greater.

Reverse bending cannot be too strongly condemned. There are a limited number of cases where this reverse bending cannot be avoided, and in such instances the rope has to be sacrificed, but knowing the bad effects resulting from such reverse bending, it is desired to sound a note of warning that should be heeded by all.

The subject of bending stresses is a very abstruse one, on which two authorities rarely agree.

Sudden stresses caused from quickly starting or accelerating the load—that is, those due to inertia—should be minimized, as they increase the tension on the rope beyond all power of calculation. A fairly heavy package can be carried by a light string or cord if the latter is humored, but if the cord is subjected to a sudden stress such as a jerk it will very likely break.

Some operators hoist too heavy loads with their ropes, and some have such high-powered machinery that if the load becomes wedged or meets with an obstruction, the engine power is sufficient to break the rope.

All ropes which operate over sheaves and drums suffer a reduction in area due to abrasion, but very often a



slight change in the layout of equipment can be made which will materially reduce this destructive factor. Wire ropes should wind on a drum having a smooth, well-scored or grooved surface, and in the case of haulage ropes, should be prevented from coming in contact with anything which would tend to retard their passage or add to the abrasive wear. Well-turned idlers or rollers should be placed at frequent intervals along the track, to prevent the rope from dragging over the ground ties and rails.

#### OVERWINDING INCREASES ABRASION

Overwinding of a wire rope on a drum greatly increases the wear on the former, especially if the rope is allowed to wind and overwind unevenly. Other evils, the direct result of uneven overwinding, are jamming and mashing of the rope.

All sheaves should be in perfect alignment in order that the rope will not wear unduly in any particular plane. The lead sheave—or in other words, the one over which the rope passes after leaving the drum—should be located far enough away from the latter to permit the rope to wind freely and evenly on the drum. If the space between the lead sheave and drum is too short or if the lead sheave is not in line with the center of the drum, increased abrasive wear will result.

If a wire rope is operated over a sheave or drum which is not properly scored or grooved for the size of the rope, the latter will flatten under the pull of the load. Such flattening tends to rapidly destroy the rope. Drums and sheaves of the proper scoring support the rope at the point where the crushing stress would otherwise produce this flattening.

When ropes are operated where they are subjected to the corrosive action of the elements, the need for proper lubrication and protection from moisture and from acids is doubly great. Sometimes a complaint of poor service is based on the actual tonnage hoisted or the amount of material removed, when it will be developed that the plant using the rope has lain idle for several weeks or months. In such a case, unless the rope is well cared for, corrosion will so weaken it that it will fail almost immediately after resumption of service.

The term crystallization is used to denote the effect produced in wires by continued operation, repeated bending over small sheaves or drums and whipping or vibration of the rope. The place in a rope where crystallization will most likely occur is where it is attached to some rigid object, such as a socket. It is therefore recognized as good practice to resocket all ropes at intervals dependent upon local conditions. What is commonly known as crystallization is in reality nothing more than fatigue of the metal.

#### ULTIMATE FAILURE IS INEVITABLE

The failure or wearing out of a rope is as natural and inevitable as that death must follow life. Doctors can retard human dissolution, and the rope user should know what constitutes good or bad treatment of a rope in order to secure the best of working conditions for his cables and thus prolong their usefulness.

There are several ways of splicing wire ropes, although all of them are identical so far as the fundamental operations are concerned. A well-made splice will often develop the full strength of the rope and be invisible to the eye of even the experienced. The length of rope neces-

sary to make a running splice will vary according to the size of the rope. For instance, at least 16 extra feet should be used for making a splice in a 1/2-in. diameter rope whereas a 1 1/2-in. diameter rope would require approximately 40 ft.

#### PROPER SOCKETING IS HIGHLY IMPORTANT

A socket well attached to a wire rope will more nearly develop the full strength of the latter than any other known type of attachment, as a uniform tension can be secured on each wire of each strand. This is always the factor of greatest importance. Most of the complaints due to breakages at the point of socketing can be traced to carelessness on the part of those who did the work.

The most approved method of applying sockets is as follows: The end of the rope to be socketed should have at least two tightly wrapped servings of soft wire, the last one being at a point about equal to where the rope will enter the basket of the socket. The strands should be opened up, the hemp core cut out, and the wires thoroughly cleaned. Grease may be removed by immersing the wires in gasoline, after which they should be dipped in a dilute solution of muriatic acid (HCl) and then plunged into boiling water containing a small amount of soda, which tends to neutralize the effect of the acid.

The wires may now be inserted into the basket of the socket, care being taken that the socket is in perfect alignment with the axis of the rope. The base of the socket should now be sealed with putty or clay, and spelter (pig zinc) should be slowly poured into the basket of the socket until the latter is filled.

To produce the best results the spelter must not be too hot nor too cold. A simple way to determine the desired temperature is to plunge a soft pine stick into the metal and quickly withdraw it. If the stick is charred, the spelter is too hot; if the spelter adheres to the stick, it is too cold for pouring.

If socketing is done in cold weather the socket should be heated enough to prevent the spelter from solidifying suddenly when brought in contact with its cold surface. Spelter which is too hot has a tendency to anneal the wires of a rope, especially if they be of fairly small size.

#### IMPORTANCE OF FREQUENT LUBRICATION

A wire rope should be lubricated for the same reason that any machinery should—to minimize the friction of its working parts. The lubrication should be so carried out that the rope will be protected from corrosion as well. Most makers thoroughly lubricate not only the wires, but the strands of ropes, in the process of manufacture, and it is imperative that the user of rope keep up the good work.

The strands of a rope have a tendency to force the lubricant out of the center, and unless the user constantly applies some lubricant to the rope internal corrosion will take place even though the wires which are visible remain bright and uncorroded.

In view of the fact that the failure of a wire rope may cause loss of life, as well as damage to property, the importance of thorough internal lubrication cannot be overestimated.

No great help can be expected from the hemp center. While this may have been thoroughly saturated in the beginning, considerable lubricant is soon squeezed out, leaving the rope dependent upon outside lubrication.

The use of a compound which will run easily and drip from the rope, leaving it practically dry after a few days in the hot sun, is to be avoided. There are few if any operations where the ropes are greased every day, nor is there any real necessity for such a practice where a properly selected compound is employed. Consequently, a lubricant should have a certain staying power even at fairly high temperatures.

The fact that a grease is fairly heavy or thick does not necessarily indicate a good lubricant; on the contrary, many such compounds possess no lubricating value whatever. A rope in use is continually subjected not alone to the wear of the drums, sheaves or rollers, but to

a constant wear inside, owing to the wires in the strands moving slightly upon each other. The edges of the strands are constantly touching and nicking when the rope bends.

A proper protective shield should form a cover, protecting not only the outside, but also the inside of the rope or cable. It should not form a hollow shell capable of retaining moisture, nor should it harden quickly and flake off. Such a shield should be absolutely impervious to moisture and should remain plastic for a considerable length of time. It should, when applied, be able to penetrate sufficiently to reach the inside wires and to make a homogeneous coating.

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## Successful Shoveling Machine

BY EDWARD H. COXE\*

*SYNOPSIS—This machine, which is built in three standard sizes, shovels the coal from the mine floor and loads it into the mine car. Slight changes in construction adapt the machine to loading coke or other material from stock pile or yard.*

The accompanying illustrations show the shoveling machine manufactured by the Myers-Whaley Co., of Knoxville, Tenn. This machine has been on the market for about five years and is the invention of William Whaley, a member of the firm, and is covered by patents issued to him.

Mr. Whaley began working on the design of this apparatus in the early part of 1907, and the first complete machine was put into operation in the spring of 1908 in the mine of the Windrock Coal & Coke Co., working in a coal bed 4½ ft. thick. Here the machine was operated for several months.

This first machine when working with an ample supply of loose coal in front of it loaded at the rate of 1 ton per min., the daily output ranging from 50 to 100 tons, according to the car supply. Adequate facilities were not provided to keep the machine steadily at work, and its use was finally discontinued.

At the present time the machine is built in three standard sizes, as follows: No. 2 type is designed to work in a space as low as 47 in. from the top of the rail to the roof. The principal dimensions are: Weight, about 9000 lb. when in working order; track gage, 18 in. and over; length, 19 to 21 ft., depending on the length of the car employed; width over all, 4 ft. 9 in.; wheelbase, 33½ in.; reach, 7 ft. 9 in. on either side of the center of the track; maximum height over all, 46 in., or more if desired; width of shovel, 27 in.; power consumption, about 7½ hp., a 10-hp. motor being provided; maximum capacity, 30 cu.ft. per min. in loose material.

No. 3 type is designed to work in 5 to 6 ft. of head room. The principal dimensions of this machine are: Weight, about 11,000 lb. in working order; track gage, 20 in. or over; length approximately 22 ft. 6 in., varying to suit car; width over all, 4 ft. 6 in.; height, 3 ft. 11 in.; wheelbase, 35 in.; reach, 8 ft. upon either side of the track center; width of shovel, 29 in.; power consumption,

about 10 hp., a 15-hp. motor being provided; maximum capacity, 35 cu.ft. per min. in loose material.

No. 4 type is designed for mines or tunnels 6 ft. and over in height. The principal dimensions are: Weight, about 17,000 lb.; track gage, 24 in. or more; length, 22 to 26 ft., varied to suit car; width over all, 5 ft. 4½ in.; height, 4 ft. 6 in. and upward, depending on height of car; wheelbase, 42 in.; reach, 10 ft. either side of the track center; width of shovel, 34 in.; power consumption, about 12 hp., a 20-hp. motor being provided; capacity, 45 cu.ft. per min. in loose material.

### ONLY ONE MOTOR IS EMPLOYED

The entire operation of the machine is accomplished by one motor mounted in the space beneath the rear inclined conveyor, the friction clutches and operating levers being all close together so that they may all be handled by one operator in one position.

The motion of the shovel closely resembles that of a man in shoveling. Figs. 1, 2 and 3 are views of a No. 2 type machine at work in a 54-in. coal bed and show different positions of the shovel proper. Fig. 1 shows it going under the coal. In Fig. 2 the shovel is partly up to the dumping position, while in Fig. 3 it is being discharged onto the conveyor. The largest type of machine has a platform mounted on the front swinging frame or jib with a seat for the operator.

The machine may be propelled backward or forward, and a clutch operated by a hand lever connects the conveyor drive and the shovel drive to the motor. This is provided with a spring set at a predetermined tension, so that should the mechanism of the conveyor or shovel encounter a greater load than it is intended to carry, the clutch slips, preventing breakage of the part. The front portion or jib frame of the machine is pivoted to the main frame and swings laterally 45 deg. on either side. This enables the No. 4 type of machine to shovel or to reach material over a total width of 20 ft. from one track.

The shovel proper consists of two parts, and is mounted on the end of the jib frame. The front is supported and driven by a crank rotating continuously in one direction. The sides of this front section extend backward to a cross-shaft having rollers on each end running in cam grooves. The rear, or inner, shovel is mounted on this cross-shaft. It fits between the sides of the front shovel

\*413 W. Cumberland Ave., Knoxville, Tenn.



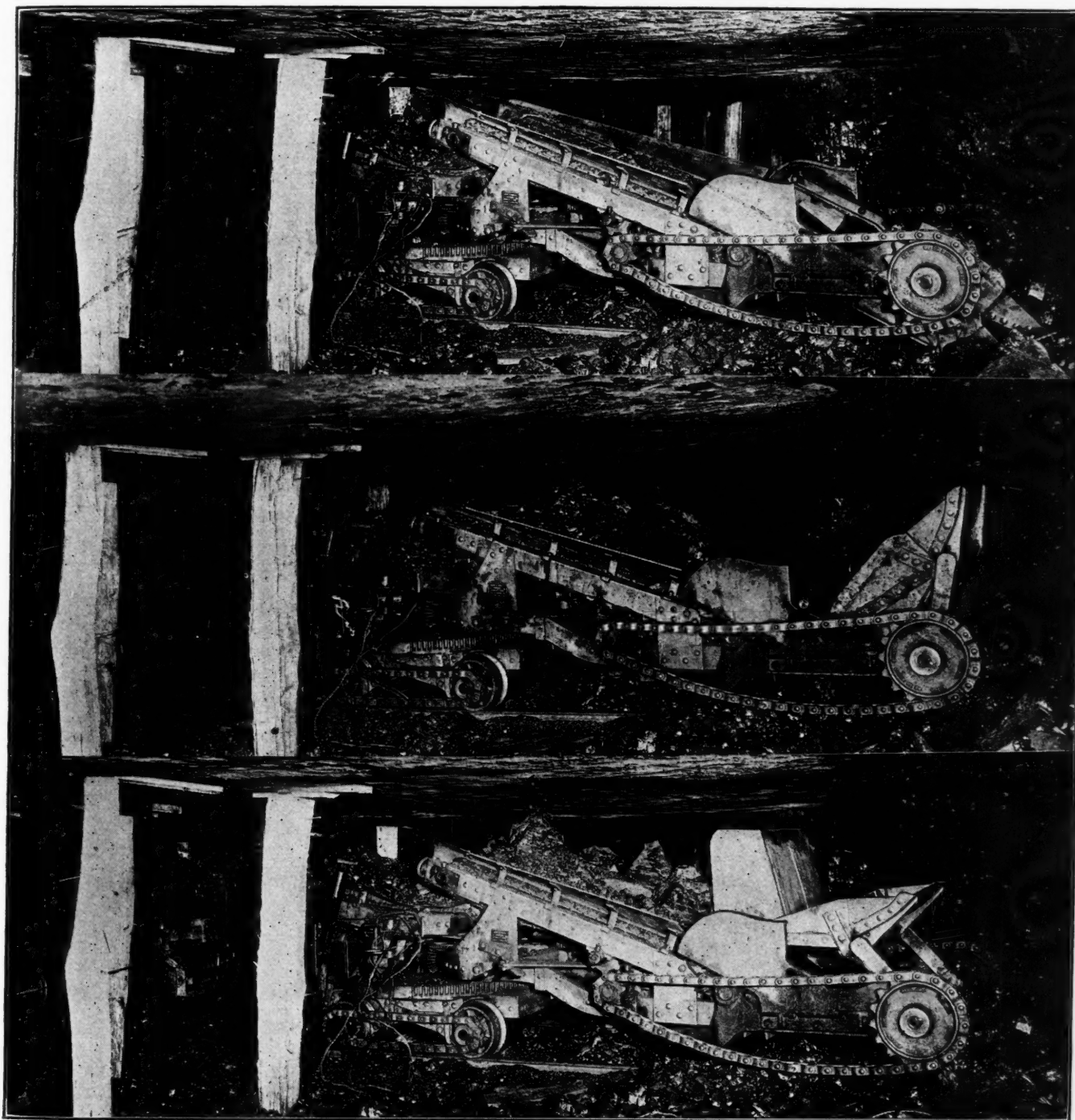
and has ears projecting upward with cam rollers to engage other grooves for tilting the rear shovel.

The shovel is thrust forward under the material to be handled, then rises up through it, passes backward and opens, discharging the coal onto the inclined conveyor, which swings on the jib. The action of the shovel is continuous and automatic. The only task the operator has to perform is to direct the shovel to the material and start and stop the machine as cars are loaded or places are cleaned up. The inclined conveyor on the jib delivers the material to a second conveyor, which is pivoted at the same point as the jib and which may be swung laterally for loading on either side of the machine or on a curve. This conveyor carries the material backward and delivers it into the car. It will handle lumps or pieces as large as can be delivered by the shovel.

Owing to the efficient shoveling motion, the power consumption is comparatively small, electric meter readings in tunnel work showing that the No. 4 machine consumes approximately  $22/100$  kw.-hr. per ton of material handled. The shovel proper on this size of machine weighs about 1000 lb. and is operated at a speed of 13 to 14 strokes per min. It will handle approximately 4 cu.ft. of material per stroke.

The main frame of the machine is a single piece of steel casting, which in the No. 4 size weighs 2200 lb., while in this size of machine there is all told about 8000 lb. of steel casting. The rest of the machine is mostly structural steel shapes and forgings, with a few cast-iron parts.

The transmission gears are all cut and most of them hardened. The bearings as a general rule are of white bronze. The sprockets are all of steel with cut teeth, the



FIGS. 1, 2 AND 3 SHOWING THREE POSITIONS OF THE SHOVEL IN THE OPERATION OF THE MACHINE

smaller ones being case-hardened. The drive chains are all of nickel steel of the automobile type of roller chain.

This shoveling machine may be operated by electricity, compressed air, steam or gasoline, and it is adaptable for underground mining in any class of material, tunnel work, open-cut work or loading to or from a stock pile. Certain minor changes may be introduced to suit the material being handled; thus for loading coke the head of the conveyor may be fitted with a screen for removing the dust and breeze before discharging it into the car. In the design for this latter class of work the whole machine may be made to revolve through a circle, the main frame being mounted upon a turntable on the truck, which has a wheelbase of 6 ft.

Machines of this type are now in successful operation in tunnels, in rock, salt, lead ore and limestone mines, in copper-ore pits and in limestone and gypsum stock piles, as well as in coal mines, these being scattered over the states of New York, Pennsylvania, Indiana, Illinois, Missouri and Montana, and also in Spain and South Africa.

The principal problem in the use of the machine is that of transportation or car supply, which in the case of coal mines has not yet been very well taken care of. Coal operators are slow to adopt new ideas or to depart from old and established customs. It is believed, however, that a considerable saving may be made, not only in the reduction in cost of loading itself, but in maintenance and because a given tonnage may be secured from a small area.

### Flag Raising at Exeter Colliery

At the Exeter colliery of the Lehigh Valley Coal Co., a flag was raised on Saturday, July 3, to celebrate Independence Day. As Sunday was the Fourth of July, it was necessary to shift the day either ahead or behind, and July 3 was chosen.

The Westmoreland and Henry collieries decorated the company's offices, and the men of Exeter colliery, with the assistance of the Lehigh Valley Coal Co., furnished a

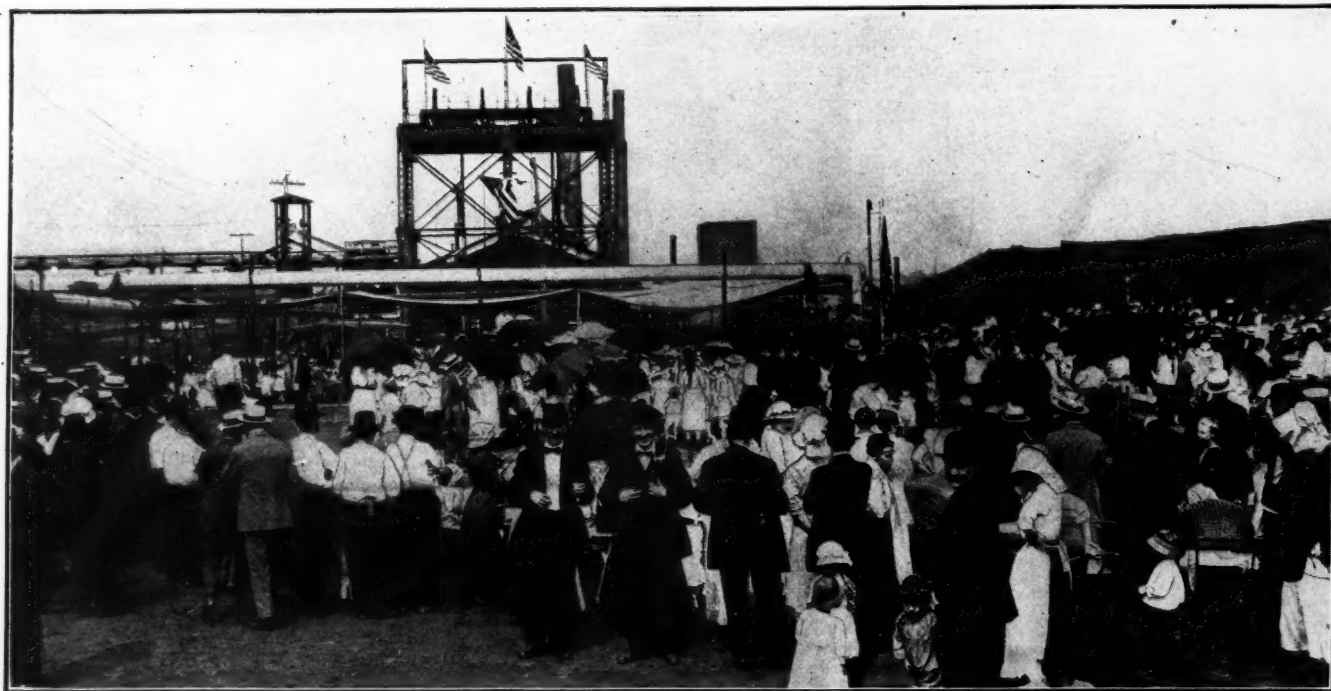
fine entertainment for a big crowd. A large flag measuring 10x18 ft. had been purchased by the employees, and a flagstaff 70 ft. high from which to fly it was provided by the company. The flagstaff is near the site of the Battle of Wyoming, where on July 3, 1778, the Tories and Indians, in unholy league, defeated the American militiamen.

The Lehigh Valley Coal Co. also supplied benches and erected a large tent for the convenience of the audience. W. D. Owens, division superintendent of the Lehigh Valley Coal Co., was chairman. The invocation was delivered by Father Quinnian, of St. Cecilia's Church, Exeter Borough. Prof. Brierly, of West Pittston, delivered the principal address, making the flag his theme. Mrs. C. S. Crane, regent of the Dial Rock chapter of the Daughters of the American Revolution, gave the obligation, and Conrad Wildoner, of the Grand Army of the Republic, made the response. Songs were sung by the school children and others under the direction of D. W. Phillips, their voices being accompanied by the Exeter band. The benediction was delivered by Rev. J. A. James.

The women and children were given ice cream and cake, and all present received a book entitled "My Flag" and a small reproduction of that emblem. Such flag raisings are becoming increasingly frequent and give an excellent opportunity for impressing on every one the ideals of freedom, order and fairness on which the republic rests.

#### FREE IN NATIONALIZATION AS IN CITIZENSHIP

But such flag raisings of late have been generally accompanied with efforts to urge naturalization on foreigners. It is doubtful whether we desire citizens who need any urging. Perhaps we should be as proud as a certain secret society which forbids a canvass for membership. Many associations have learned to their cost that they have only been weakened by such members as were secured by dint of excessive solicitation. We want our citizens to come freely to a free country.



PART OF THE CROWD AT THE FLAG RAISING AT EXETER COLLIERY OF THE LEHIGH VALLEY COAL CO.





VETERANS OF THE GRAND ARMY, WITH COMPANY OFFICIALS

Mrs. C. S. Crane is in the center. The company officers are W. D. Owens, A. H. Browning, R. A. Mulhall, George Miller, J. C. Williams, C. C. Brierly, Richard Culter, David Owens and David Richards. The G. A. R. men include Comrades Shoemaker, Wolf, Nagle, Wildoner, Fetts and Durland



OFFICIALS, OLD EMPLOYEES AND BOY SCOUTS AT THE FLAG RAISING TO CELEBRATE INDEPENDENCE DAY

Our problem is not much different from that of Russia in Poland; Germany in Alsace-Lorraine and East Prussia; Austria in Galicia and Transylvania; England in French Canada, the Transvaal and Egypt. The more we press our language, our ways and nationalities on foreigners the more they resist. We shall and do succeed, despite the difficulties, only by following, like some other nations, the broad and unerring road of tolerance. The work of nationalization proceeds the faster because those we would assimilate came here with a predisposition to believe this country a land of freedom and of large opportunity. We of all people have the least need to force the process of digestion.

But we must not be surprised if foreigners, even from the Balkan states, are not at first enamored of our civilization or anxious for a place as citizens. It is not any more surprising than the fact that the fellaheen of Egypt have but little affection for British rule.

#### AMERICANIZATION NOT TO BE IMPOSED, BUT EMBRACED

But we need not despair. Granting these aliens fellowship and fair treatment, they will not be foreigners long. "Good wine needs no bush," and our American freedom, tolerance and good nature need no advertisement.

But the flinging of the flag to the breeze is the confession of our faith in those ideals on which the nation

is founded and of our intention that those purposes of our government shall be perpetuated by our people. The binding force of such teachings will knit together our communities and do much to prevent those unfortunate manifestations of violence and ill-will that have awakened us too often to the fact that all are not Americans who are domiciled in America.

It is for these reasons that flag raisings such as that at Exeter are to be commended. By such exercises our people consecrate themselves to the service of the nation, and it is a pity that in other places this worthy national movement is being mixed with a proselytizing propaganda which cannot effect its purpose.

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#### Don't Blow Into a Cap

It is common practice for miners to blow into fulminate caps when making up primers, in order to blow out any dust, dirt or sawdust which may be therein. This is a bad practice, as the moisture from the breath or small globules of saliva may dampen the end of the powder train in the fuse when it is inserted and cause a cutoff or even a misfire. Neither should the cap be rapped on anything hard to loosen and shake out any dirt. If proper care is taken of the caps they will not need any such cleaning.—*Engineering and Mining Journal*.

## Coal Trade's Need of National Co-operation\*

BY CHARLES F. KERCHNER†

No industry is more in need of coöperation than the coal trade, and the coal trade at this time is more in need of intelligent coöperation than ever before in its history. Why?

Because one definition of coöperation in an industry is given as the equitable distribution of profits among those who earn them, which means that coöperation should insure that there be some profits for distribution. Also because during the past twelve months, owing to the great industrial depression and the adverse business conditions attributed primarily to the European War, no branch of the coal industry acknowledges having received a normal or equitable profit.

The war in Europe seems to have brought on price wars among the trade in many sections of the country. I am considering the subject from the standpoint of the mine operator, the coal carrier, the selling agent or jobber and the retailer of coal, and perhaps the consumer as well. When we think of the vast and varied interests covered by this list, the tremendous work of supplying the fuel needs of this country, and as now seems imminent the requirements of many foreign markets that may depend upon us, the subject seems appalling and much too important to be dealt with except very briefly.

When we consider that the coal areas of the United States are limited, it is evident that in view of our broadening markets, foreign and domestic, we should conserve our coal wealth against crude, wasteful and antiquated merchandising methods. This latter means that every branch of the trade should be safeguarded against cut-throat competition and unfair business practices; that a general and continuous effort be made all along the line to bring about a more even demand and distribution so that periods of great shortage in markets are not followed later by overstocked bins at ruinous prices.

### REDUCING NUMBER OF SIZES

The anthracite companies have been considering during the past year the question of reducing the number of sizes now prepared and sold by them. A decrease in the number of sizes, if it could be managed without disturbing present markets or lessening the demand by the introduction of competing substitutes, would be to the advantage of the mining companies and of some advantage to the retail distributor. I cite this simply as an instance where working together might help solve an important problem.

The necessity of coöperation in the coal trade must have been recognized early in its history. This is evidenced by the many exchanges, associations, clubs and organizations of all kinds that have been projected in the past, also by the many local and state organizations that flourish at the present time. A great number of those are largely composed of retailers and are intended to safeguard the interests principally of the retail distributors of coal. About this time of the year our trade papers devote considerable space to convention proceedings of these associations.

In some of our city coal exchanges the members in utter violation of fundamental business principles are en-

gaged in price-cutting campaigns that must mean serious money loss and sacrifice of capital and credit. These spasmodic outbreaks, usually started by one kicking member, often apparently unsettle or annul the effect of several years of patient organization. Why have these irregular and unsatisfactory conditions prevailed? What is the answer?

Is it a fact, as one writer observed, "that men cannot coöperate successfully for any purpose if the sole bond between them is one of self-interest?" Are we hampered too much by tradition and precedent? Isn't it about time that a manly effort be made to bring these various interests of this great industry together in one strong national organization that will be always and everywhere truly representative; that will be mutually beneficial and protective; that will carry the educational work into every city, town and village in our land; that might be competent to voice the sentiments of the trade as a body on any national or state legislative question that directly or indirectly affects the interests of the trade; that no question would be too large or too complex for the organization to handle while leaving strictly local matters to the state or other local associations?

Is there need in the trade now for such an organization, and isn't this the psychological moment to project it? Your presence here indicates that you believe in the value of organized effort. If so how shall we bring this national association into being? Organize here with charter members, adopt bylaws and begin a recruiting campaign? Or shall we make use of Kokoal, adopting its many valuable features, principal among them being its social and fraternal ideas? If the latter are joined with some serious object that would appeal to the material interest of the various branches of the trade, we will have an ideal organization that will command the universal support and respect of our trade members.

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## Coke Demand from Italy

According to advices received by the Chamber of Commerce of the United States from Charles F. Hauss, president of the American Chamber of Commerce in Milan, there is an opportunity because of war conditions for the United States to acquire coke and iron business in Italy. The demand for this metallurgical foundry coke and pig iron appears to be urgent.

Mr. Hauss informs the national chamber that war between Italy and Germany has stopped entirely the arrival of foundry coke and low-grade pig iron from Germany. The local producers, which are the Solvay process works at Vado and Savona near Genoa, are closed because they have no coal, and until the war is over very little coal and coke will come from England, from which Italy has been importing about 70,000 tons of coke per year. The imports from Germany, Austria and Belgium amounted to 220,000 tons of coke per year.

"If the present feeling can be depended upon," Mr. Hauss informs the national chamber, "Italy will probably never purchase from Germany again, or if she does, it will be after a long time, so that America never had a better opportunity to get and hold the coke and iron business in Italy. We therefore cabled that there is a great demand for metallurgical foundry coke and pig iron and requested that you wire prices."

\*Address delivered before the Order Kokoal, Auditorium Hotel, Chicago, Ill., July 13, 1915.

†Hall Bros. & Co., Baltimore, Md.



Mr. Hauss suggests to prospective senders that the date should be given at which sailing can be had. The unloading and handling charges to put the goods on cars at Genoa or Savona would be about 50c. a ton, and the freight from these ports to Milan is just under \$2 a ton. The port of Savona has special facilities for unloading coal and coke, so that this would be the best port to which to ship.

The metallurgical or hard foundry coke, which has come from Westfalia in the past, was delivered in Milan at from \$11 to \$12 a ton, and at the present those who have any coke in stock are getting anywhere from \$20 upward a ton.

The committee on transportation of the Milan chamber is studying the matter of finding return cargoes for American steamers and has in view besides the colored and Carrara marble, zinc and lead hematite, and iron ore from the island of Sardinia. There is naturally the usual higher grade freight for alimentary products as well as wine, cheese and silk. Such an arrangement would tend to reduce the freight rates and at the same time build up a substantial business between the United States and Italy.

Furthermore the financial committee of the Milan chamber is at work on an arrangement between the banks in Italy and in the United States which would advance money on bills of lading, thus avoiding the disagreeable demand for payment in advance.

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### European Financial Interests in South America

That Great Britain's financial interests in South America have been of material assistance in smoothing the way for her export coal trade has been generally accepted. It is not, however, as widely known by what scale these interests are measured.

At the end of 1912 it was estimated that Great Britain had £724,623,743 invested in South America. While the German figures are not available, there is no doubt their tremendous increase in shipments from 13½ million tons in 1903 to 43½ million tons in 1913 was due in a measure to the same reason. The course for America to pursue is plain.

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### Decrease in Anthracite Shipments

Shipments of anthracite during the first half of this year were 1,350,485 tons less than those during the first six months of 1914. Shipments last month were 814,084 tons less than those of June a year ago. The figures for June were 5,316,102 tons this year and 6,130,186 tons in 1914, and the total figures for the six months were 31,595,304 tons this year as against 32,945,789 tons in 1914. The amount of coal on hand at tidewater shipping ports decreased 11,888 tons, from 751,617 tons on May 31 to 739,729 tons on June 30.

The Lehigh Valley led in tonnage for the month with 988,253, the Lackawanna was second with 888,399 and the Philadelphia & Reading was third with 852,411. The Delaware & Hudson carried 697,894 tons, the Erie 693,089 tons, the Jersey Central 609,127 tons, the Pennsylvania 446,690 tons and the New York, Ontario & Western 140,239 tons.

### Extracts from a Superintendent's Diary

Today a moving-picture film-producing company came into camp and took temporary possession of everything in sight—men, women, children, mules, scenery, equipment and all. For some time we have had one or more idle days in each week, and I decided last Monday when the manager of the film company came for an interview that no reasonable objection could be raised against turning over the mine to his company on the next idle day, so today's adventures were the result.

We staged a mine fire, an explosion and a strike in rapid succession, and if circumstances had not interfered, would have enacted a murder trial in which four striking miners were to have received death sentences, largely because some of their companions had insisted on telling what they knew when put on the stand to testify.

We were supposed to furnish only the scenery and the mob—the camera, the scenario, the stars and the director being provided for in advance; but as a matter of fact we inspired so many changes in the scenario that its author won't be able to recognize it when he sees the film; and as for the stars, the star of the entire performance was Sim Hicks, organizer and leader of the last strike at our camp, while Sadie McDonald, his sweetheart, earned favorable mention to say the least.

The strike as conceived by the author of the scenario was minutely described and could have been enacted down to the smallest detail, but his kind of a strike never has existed anywhere outside of the minds of some people who, like the author of the scenario, receive their impressions from newspapers or novels; and Sim Hicks, standing back with the "supers" as the instructions were being read, felt called upon to go up to the director and tell him how the thing ought to go.

Fortunately the leading man of the company realized that Sim knew whereof he spoke, and a few moments later he also realized that Sim could take the lead; and what was more to the point, he had Sim leading before Sim realized just what was up.

Another thing that Sim accomplished without realizing it, was the clearing up for some of us of many mysteries connected with our last strike, so completely did he become wrapped up in the spirit of the drama.

Sadie McDonald was assigned a minor part, which as it happened proved most fortunate for the success of the picture, because Sadie also became wrapped up in the drama; but her infatuation was not with the spirit of the drama, but with the worldly spirits by which it was being enacted.

The realistic manner in which the two actresses who were supposed to be rivals for Sim's love caressed him every time they had half a chance was too much for Sadie; and in the last scene, when Sim is supposed to make a choice and advanced with open arms to receive the lucky fair one, Sadie lost control of her emotions and would have spoiled the entire film had it not been for the presence of mind of the director, who managed to make Sadie's unexpected advent into the center of action appear as if she were really part of the program, being none other than a third rival for the hand of our handsome strike leader.

All in all, before the film was finished Sim, Sadie and all of us had a day of it that we will not soon forget.

## Middle Western Anthracite Market Dull

Efforts to stimulate anthracite orders are still being made in the Middle West, but it is doubtful if a reduction of \$1 per ton would result in increased buying. Anthracite shippers on the Upper-Lake docks still have considerable empty space in their yards; but the independent shippers, not having storage facilities, have been cutting prices to move their current output, while the dealers complain that they cannot accept the volume of shipments of other years because of the meager demand for storage coal this summer. They are working on a hand-to-mouth basis until return of cold weather, when they expect an extraordinary activity.

At points in Illinois, Iowa and Nebraska current shipments have been made at discounts of from 35c. to 50c., which are the lowest prices for a number of years past. July is usually considered a dull anthracite month in the West.

## Situation at Upper-Lake Docks

The movement of coal off Lake docks has been unusually slow this season. Receipts up to June 10 as compared with those up to June 1, 1914, were: Soft coal, 1,065,000 tons, against 1,308,000; hard coal, 344,000 tons, against 130,500.

More hard coal has been shipped this year than last season, while the tonnage of soft coal shipped to the head of the Lakes is considerably less than last year. Approximately the docks had in stock Apr. 1 this year 3,275,000 tons of soft coal and 482,000 tons of hard coal. This, with the shipments of the present season, shows coal on docks to be 4,340,000 tons of soft coal and 1,826,000 tons of hard coal, or a total of 6,166,000 tons, less the shipments moved since Apr. 1, which are smaller than ever before.

Most of the tonnage carried over was what may be termed for railroad use, and as a result of the bountiful crops in prospect the railroads undoubtedly will requisition heavily on supplies from the docks in the near future. Normally they consume 3,500,000 tons of dock coal. The dock companies have always figured on the trade taking a reasonable amount of its requirements during spring and the early summer months, but for two years the trade has waited until the coal was actually needed, which has added to the complications of the dock situation.

## Annual Meet of American Mine Safety Association

By authority of the executive committee the annual meeting of the American Mine Safety Association for election of officers and transaction of business will be held in Birmingham, Ala., Sept. 2, 3 and 4, 1915. There will be the usual joint interstate miners' field meet, and the Bureau of Mines, the Alabama Safety Association and the American Red Cross will act in conjunction in promoting this event, which will be known as the Third Annual Southern States Miners' Field Meet.

Headquarters will be at the Hilman Hotel, and the sessions of the association, beginning at 1 p.m., Sept. 2, will be held in the rooms of the Chamber of Commerce. The executive committee is notified to meet at this place

at 10 a.m., Sept. 2. Chairmen of all committees are requested to prepare and submit their annual reports and their recommendations regarding changes in standards or practices.

The largest possible attendance is urged, both because of the importance of the business to come before the association and the fact that the field meet will result in the selection of a team to represent the Southern States at the National Miners' Contest, San Francisco, Sept. 23 and 24.

## Fuel Used by New York Gas and Electric Companies

The gas and electric companies operating in New York City consumed 2,684,839 tons of coal and coke during 1914, according to reports filed with the Public Service Commission. Of this total the gas companies used 1,579,122 tons of coal and coke, and the electric companies used 87,548 tons of anthracite and 1,018,169 tons of bituminous. The reports also show that three of the gas companies made 533,474 tons of coke and sold 271,539 tons.

The tonnages used by the various companies are given in the accompanying tables.

### COAL CONSUMED BY ELECTRIC COMPANIES IN 1914 (TONS)

	Anthracite	Bituminous
New York Edison Co.....	8,066	686,973
United Electric Co.....		113,027
New York & Queens Electric & Power Co.....	23,816	8,220
Flatbush Gas Co.....	15,012	1,605
Edison Illuminating Co. of Brooklyn.....	37,971	168,778
Bowery Bay Electric Light & Power Co.....	1,635	12,705
Queens Borough Gas & Electric Co.....		26,861
Richmond Light & R.R. Co.....	1,048	
	87,548	1,018,169

### COAL CONSUMED BY GAS COMPANIES IN 1914 (TONS)

	Boiler	Retorts	Generator	Carbonized
Consolidated Gas Co.....	13,402 <sup>1</sup>	5,345 <sup>2</sup>	49,935 <sup>1</sup>	78,560 <sup>4</sup>
New Amsterdam Gas Co.....	16,904 <sup>2</sup>		41,003 <sup>2</sup>	
New York Mutual Gas Co.....	16,697 <sup>2</sup>		64,813 <sup>3</sup>	
New York & Queens Gas Co.....	2,991		36,960	
Astoria Light, Heat & Power Co.....	2,144		4,788	
Standard Gas Light Co.....	42,032	66,527 <sup>2</sup>	87,565 <sup>2</sup>	577,170 <sup>4</sup>
Central Union Gas Co.....	11,402 <sup>3</sup>		35,782 <sup>3</sup>	
Brooklyn Borough Gas Co.....	14,446 <sup>3</sup>	10,565	30,892 <sup>3</sup>	112,525 <sup>5</sup>
Kings County Lighting Co.....	2,540		6,499	
Brooklyn Union Gas Co.....	5,573		16,505	
Bronx Gas & Electric Co.....	48,476		239,772	
Queens Borough Gas & Electric Co.....	12,361		3,629	
New York & Richmond Gas Co.....	2,803		5,308	
	3,177	2,497 <sup>1</sup>	7,028	
		507 <sup>2</sup>		
Total.....	194,948	85,441	530,479	768,254
<sup>1</sup> Coal. <sup>2</sup> Coke. <sup>3</sup> Coal and Coke. <sup>4</sup> Boilers. <sup>5</sup> Retorts.				

### COKE STATISTICS FOR 1914 (TONS)

	Made	Used	Sold	Amount Received
Consolidated Gas Co.....	54,779		39,215	\$138,864.90
Astoria L., H. & P. Co.....	403,344	201,296	206,037	644,141.53
Central Union Gas Co.....	75,351	49,224	26,287	116,775.60
	533,474	250,520	271,539	\$899,782.00

## Exposition Prizes Awarded

The preliminary list of awards by the Panama-Pacific International Exposition gives the Department of the Interior's collective exhibit one grand prize. The exhibit of the Geological Survey receives one grand prize, four medals of honor, five gold medals, six silver and two bronze medals. The Bureau of Mines receives one grand prize, six medals of honor, three gold medals and three silver medals.



## Bunkering at San Francisco

The only large bunker contract in San Francisco is the Pacific Mail Steamship Co.'s contract, filled by the Western Fuel Co. All regular steamship lines that touch San Francisco, if engaged in the coastwise trade, burn oil; those in the ocean trade that burn coal usually touch at Puget Sound or Vancouver Island and bunker there. At the end of 1914 there was brisk bunkering on account of tramp steamers arriving in San Francisco to take grain cargoes to England. The price for bunkering coal is around \$6.75 to \$7.25 f.o.b. vessel, for mine-run coal. The coal is loaded from wooden hulks or barges fitted with special machinery for bunkering vessels, and they are brought alongside the vessel for that purpose.

## Economy of Motor Trucks for Delivering Coal

By J. F. FLOOD\*

In the fall of 1912 the Youghiogheny Coal Co., of Pittsburgh, Penn., purchased two 6-ton Peerless trucks and commenced operating them. These gave such complete satisfaction that they bought two 5-ton trucks on Oct. 7, 1913. The depreciation charges against these trucks, plus net earnings, equal an amount, as of Dec. 31, 1914, that is \$3200.81 in excess of their cost, all expenses of operation, plus depreciation, being charged to the trucks. The company has figures to show what it costs per ton to haul coal by means of horses, the coal delivered by trucks being charged at the same rate as team delivery. The fact that the depreciation charges, plus net earnings, exceed the cost of trucks by more than \$3000 is conclusive proof that their investment in trucks has been a profitable one.

Two of the trucks used by this company are of 5-ton capacity, but the average load in 1914 was 6.005 tons.

\*General manager, Youghiogheny Coal Co., Pittsburgh, Penn.

During that year each of these trucks averaged a total actual running time of 320 days of 10 hr. each, exclusive of the time it took the trucks to run from the garage to the yard and return.

These four trucks have covered more than 80,000 miles, carrying heavy loads up many of the steep grades of Pittsburgh and have never been stalled for want of power.

## Recent Legal Decisions

**Missouri's Mine Ventilation Law**—The statutory duty of Missouri coal operators to provide suitable ventilation for miners at work does not prevent an operator from devolving the duty of cutting openings upon miners whose skill and experience qualify them to do the work. And an operator is not liable for injury to a miner resulting from poisonous gases and lack of opening between two rooms if the injury followed the miner's disobedience of an order given him by his foreman to make an opening. (Kansas City Court of Appeals, *Perry vs. Northwestern Coal & Mining Co.*, 175 Southwestern Reporter 140.)

**Delivery of Coal on Private Tracks**—Where carload shipments of coal were consigned for delivery to the consignee on his private switch track leading to his coal-sheds, the delivering railway company was not entitled to payment of the freight charges nor could demurrage charges accrue until the cars were placed on that track. Putting the cars on public delivery tracks at the point of destination and notifying the consignee of their arrival was insufficient tender of delivery. (Massachusetts Supreme Judicial Court, *New York, New Haven & Hartford R.R. Co. vs. Porter*, 108 Northeastern Reporter 499.)

**Royalties and Forfeitures Under Coal Leases**—When a coal lease provides for mining various sizes of coal at differing royalties and for payment of minimum royalties, but fails to provide what proportion of small sizes shall constitute the minimum quantity to be mined annually by the lessee, it will be enforced according to any practical construction that may be for a long time mutually adopted by the parties. A clause authorizing the lessor to declare a forfeiture of the lease on the lessee's failure for more than 90 days to pay royalties after they have become due will not justify a forfeiture for delay in paying a small amount if the lessee's liability for that amount was reasonably in doubt during the period of the delay in payment. (Pennsylvania Supreme Court, *Lehigh Valley R. Co. vs. Searle and Stark Heirs*, 94 Atlantic Reporter, 74.)

## Ballads of a Coal Miner--III

By BERTON BRALEY

Today when we gets through  
My pardner says, says he,  
"Come on, let's hist a few—  
The drinks'll be on me."  
But I says, "Thank you, bo,  
I'm on the water cart,  
I'll have to answer, No,  
Right here an' at the start.

"This time, of course, *you'd* buy  
But next wud be *my* turn  
An' drinks comes much too high  
Fer me, with what I earn.  
Besides, frum what I've seen,  
Booze treats you mighty rough,  
An' I ain't very keen  
To monkey with the stuff.

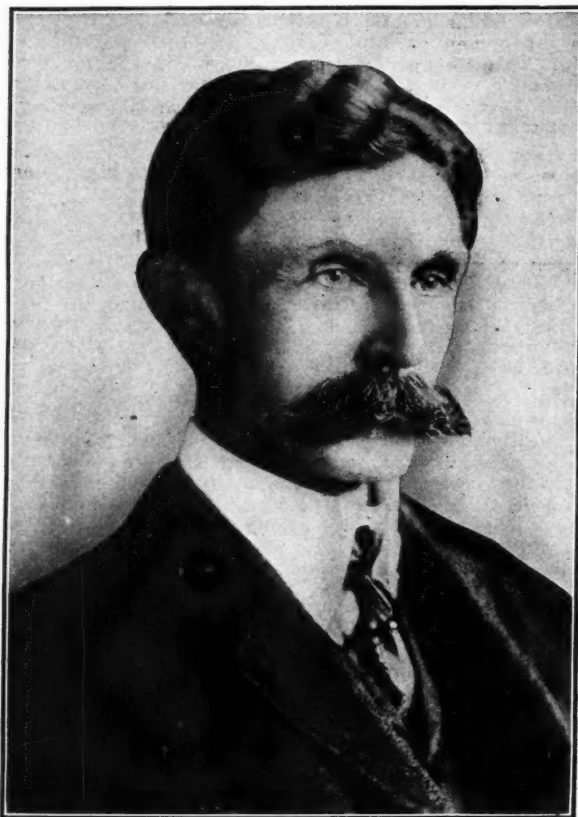
"I've seen guys blow their kale,  
Get drunk an' row an' fight,  
I've seen 'em land in jail  
Or sleep on floors all night,  
I've seen 'em come on shift  
All shaky-like an' gray,  
An' so—you get my drift—  
I think it doesn't pay.

"There's chance enough to take  
When I'm in sober trim,  
Without no booze to make  
My senses dull an' dim.  
I guess I'll blow my chink  
For grub an' clothes an' shoes;  
Some guys prefer to drink,  
But I'll keep off the booze!"

## The Death of Doctor Holmes

Word has been received that Dr. Joseph A. Holmes, director of the United States Bureau of Mines, died in Denver, Colo., on July 12. For a number of months Doctor Holmes' strength has been gradually failing him. All his efforts to regain his health through changes of climate and by securing the best of medical advice were unavailing.

It is the belief of many of the friends of Doctor Holmes that his untimely end was hastened by the unusual efforts and the long hours he devoted to the establishment and operation of the Federal mining bureau. Doctor Holmes was the first director of this comparatively new mining department of the Government, and it is to him principal-



JOSEPH AUSTIN HOLMES

ly that credit must be given for the excellent organization that has been established.

*Coal Age* has already published a short sketch of the life of Doctor Holmes, but a few words at the present moment are of interest.

He was educated at Cornell University, graduating from that institution in 1880. After leaving college his attention was largely devoted to geology, chemistry and mining. He visited mining regions in this and many foreign countries, examining both metal mines and coal operations. From 1881 to 1891 he served as professor of geology in the University of North Carolina. From 1891 to 1903 he acted as state geologist for North Carolina. In 1903-4 he organized and had charge of the Department of Mines and Metallurgy at the World's Fair, St. Louis.

His first real work for the Government commenced in 1904, when he was placed in charge of important fuel tests then being conducted. In 1905 the director of the United States Geological Survey enlarged the scope of

Doctor Holmes' work, so that his investigations covered mine explosions and other important phases of general mining work. From 1905 to 1910 this mining work was carried on by Doctor Holmes under the direct supervision of the Geological Survey. It was in 1910 that the new mining bureau was first established, with Doctor Holmes as its first head.

Joseph A. Holmes was a member of the American Institute of Mining Engineers, the Mining and Metallurgical Society of America and a number of other similar organizations. He was possessed of one predominant quality—tact—which served him well in the difficult task he undertook of popularizing the new Federal mining bureau among the coal- and metal-mining fraternity of America. Many men believed that the Government had neither reason nor right to enter actively into the business of mining, even on a coöperative and nonproductive basis, and it became the duty of Doctor Holmes to satisfy these men that the Bureau of Mines was organized solely as an advisory department and not as a bureau of interference and dictation.

The national recognition that has been accorded this branch of the Government service constitutes the greatest compliment that the mining industry of America can contribute to the memory of a man all have loved for his common virtues and respected for his work as an organizer and engineer.

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## New Safety Precautions

The Susquehanna Coal Co. has just completed examining its mine foremen, assistant mine foremen, fire bosses and safety inspectors in the anthracite-mine law. Many of these men have been in the employ of the company for long periods and passed their state examinations many years ago. The management of the company wanted to make sure that they were conversant with the mine law as it is today, and the results have been most gratifying.

The series of examinations was started in all five divisions of the Susquehanna Coal Co. last fall. Certain pages of mine law were assigned as the subject-matter for each examination, and the employees who occupy the responsible positions were given three months to prepare for the first test. In a division that reported recently, only three men scored less than 100 per cent.

The examinations are given by the division superintendents and are written. They are modeled upon a system of periodic examination such as is conducted in schools of like nature. The examinations are held on days when the colliery is idle, or at night, and the entire mine law germane to their duties is covered in the series. Such a series of systematic tests can be carried out by any company, large or small. The interest and study shown by the employees have proved highly satisfactory to both officials and men.

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As Pressure Increases with Depth in mining, so will the tendency to lessen the proportion of large coal. This is clearly recognized, and the way in which it may be moderated is by laying out the workings in the manner most suitable for the cleavages, also by the method of undercutting and packing and by avoiding downhill faces in seams with much dip. It is further held to be especially desirable to work at a uniform rate with just sufficient pressure to help in bringing down the coal. Stopping the workings for a time is known to be detrimental.



# The Labor Situation

**SYNOPSIS**—It is possible that there will be no anthracite strike next spring. A Pennsylvania court refuses to grant an injunction against the union. The condition of labor in Ohio is desperate and little bettered by the ending of the strike. Miners strike in the eastern Kentucky field for a restoration of the former wage scale. The Bache-Denman Coal Co. learns that it cannot get damages for mines destroyed. In Colorado attempt is being made to remove Lawson's judge.

On June 8 the canvass of the United Mine Workers of America for new members started in the anthracite region, with President John P. White as principal spokesman. In his speeches he urged the strengthening of the union in order that an 8-hr. day might be established and the union recognized. These are apparently to be the main aims of the anthracite workers in the coming struggle. If these ends alone are sought, the strike is quite likely to meet public approval and to end in complete success.

The 8-hr. day may not be strongly opposed by the operators; for it is probable that the day workers, who are the only persons really concerned, can easily increase their efficiency so much that in the shorter day a larger output may be produced. It is impossible to disguise the fact that in the anthracite region there has been some "slacking," as our English cousins call it. Even with shorter hours a larger stint of work could be performed; for in one state, Illinois, where the 8-hr. day obtains nearly five times as much coal is handled by the outside force as in the anthracite region. This is shown to be true when making the calculation, even when we exclude in favor of the anthracite region all the slate pickers in that field.

Very cleverly Mr. White at Scranton said: "Let us be consistent; when we demand that the operators recognize our union, let us recognize it ourselves and join it." This pronouncement is the keynote of the canvass.

## A Rumor That Some Operators Favor the Check-Off

There is a rumor started that some of the companies are willing to grant the check-off and full recognition of the union. Of course, this is spread to bring the men into line, but it has probably some basis in truth. Certain of the larger companies do appear to be favorable to some means of preventing button strikes and think the check-off a cure, because the man who desires to quit paying has to declare his intention openly, whereas now he can simply be slack.

The 10-per cent. increase demanded will not be obtained in practice by the daymen if the hours are shortened more than the wage is increased, which is what they desire and demand. Consequently it is likely that the increase will be granted, the men promising to make up the shortness of the working day by greater diligence when at work.

The daymen failing to get an increase in day wage and having their working hours reduced only to that which is already customary with contract miners—who often work even less—the contract miners may be well content to waive their demand for increased pay. If they want a higher return they can readily increase their output of coal. So considering everything, it seems likely at present that the much-heralded anthracite strike may end in a love feast.

The mine managers and operators in the anthracite region are in a class by themselves. If perhaps a somewhat un-American degree of aloofness characterizes them, there is also a marked tendency toward paternalism or socialism, whichever one may choose to term it; and if the miners enter into their schemes, it is quite likely that the latter will find the operators ready to make an arrangement which will benefit the workingmen in many ways. In fact there is a large amount of fine idealism in the anthracite operator upon which the coal miner can well work to the mutual advantage of both.

Perhaps the conciliation board will be removed and replaced by boards like those already established elsewhere. They have not brought peace any more than the anthracite conciliation board, but they are probably as successful in doing so as the board now in control in the anthracite region will ever be. The miners always will, it is to be presumed, prefer to strike than to arbitrate, and they will find a way, like the operators, to avoid the fines proposed. The miner

always terms the strike a "holiday" and the operator explains a lockout as a "shortage of orders" or of railroad cars.

## Some New Decisions of the Conciliation Board

The conciliation board has decided that the employees of the Bear Valley colliery of the Philadelphia & Reading Coal & Iron Co. are entitled to yardage pay when cutting pillar-hole headings where foremen or assistants order the work done. The pillar-hole headings are what in the bituminous regions would be termed rib crosscuts.

The Harwood Coal Co. dispute was not decided as the board was unable under the evidence to determine what the former practices have been, and the mine committee and the officials of the company have been instructed to meet and ascertain the conditions under which certain rates were formerly paid.

The Clinton colliery workers declared to the board that the Delaware & Hudson Co. had discharged certain pillar men out of spite and not, as claimed, solely to reduce the force employed. This grievance was withdrawn on the reinstatement of the men.

The engineers and pumpmen of the Valley Coal Co. and Coxe Brothers & Co. desired the board to decide against the practice of those companies, which was alleged to be to lay off the regular engineers and pumpmen when times were dull and replace them with assistant mine foremen and firebosses. This matter was referred to the umpire for adjustment, as was also the case of the Tunnel Ridge colliery against the Philadelphia & Reading Coal & Iron Co.

Two other grievances were withdrawn. Thus of 3 disputes 2 were decided for the miners, 2 were withdrawn, 3 were referred to the umpire and 1 was returned to the company and men for further consideration.

Charles P. Neill, of New York, formerly United States Commissioner of Labor, has been named by Judge Joseph P. Buffington of the Third Federal Judicial District Court as umpire to adjust the 20 grievances from the anthracite coal mines in which the conciliation board is unable to agree.

## "Thin-Vein" Coal Is Coal North of a Given Line

In the Pittsburgh region the Washington County Court has refused to enjoin the officers of District No. 5 of the United Mine Workers of America from inducing the members of the union to cease work for the Youghiogheny-Pittsburgh Coal Co. The ground of the petition filed by that company was set forth at length in this department of "Coal Age" in the issue of June 19. The court decided that the plaintiff clearly failed to show satisfactory evidence that it was entitled under the 1914 wage scale to employ miners at the rate which it had been paying them. Hence the plaintiff's bill for an injunction against the union officers was dismissed at the cost of the plaintiff.

The company held that the imaginary boundary line between the thick and thin veins of coal known as the "Cedar Creek, Lock No. 4 and Waynesburg and Washington railroad" line was not in contemplation by the parties when they used the words "thin vein" and "thick vein." The court held that if some other division than that named in a previous agreement was contemplated, then as the agreement is made in reference to all the mines in the district, it is void everywhere because of its uncertainty. Consequently an inquiry would have to be made for each individual mine to determine whether wages should be paid on the "thin-vein" or "thick-vein" scale. Further, the court was unable to determine from the evidence before it the exact number of feet of coal required to bring the mine under classification as "thick vein" within the meaning of the persons who executed the scale agreement of 1914.

## Sunday Creek Co. Shuts Down More Mines in Ohio

In the Hocking district of Ohio, John H. Winder, general manager of the Sunday Creek Co., announced that the two San Toy mines, located on the Baltimore & Ohio R.R., were closed down indefinitely July 6. Now that these are shut down the Sunday Creek Co. is only operating three mines in Ohio, and they are on the Toledo & Ohio Central R.R. Just how long they will continue working is a matter of conjecture, but it is believed it will not be long unless the demand for Ohio coal greatly improves.

All in all, the coal-mining situation in the Buckeye State is in bad shape. Only about 33½ per cent. of normal output from all of the fields of the state is reported, and the percentage is gradually growing smaller.

Vigorous steps are being taken by Ohio operators to right these conditions. One of these has been to form a strong operators' association to include all fields of the Buckeye State. In former years the operators in Ohio have not

been organized, and they have not been able to show a united front. Another step is to endeavor to secure relief from the discriminatory freight rates. Since the General Assembly refused to take action last winter a movement has been started to induce the Ohio Utilities Commission to lower intrastate rates. The commission has the authority, as is shown by the decision of the Ohio Supreme Court in the case of the New York Coal Co. against the Hocking Valley Ry. Co. As a result of this suit the freight rate from Nelsonville to Toledo was reduced from \$1 to 85c.

Hocking Valley operators and miners are both urging Governor Willis to come to the rescue of the coal trade in Ohio. Both sides now appear to be united on that matter. It is understood that the Utilities Commission is favorably inclined toward the reduction of Ohio freight rates on the zone basis. But as one of the commissioners expressed it, "What is to prevent the railroads from reducing their rates from West Virginia and Kentucky to lake ports and from renewing in that way their discrimination against the Ohio operators?"

It is pointed out that when the railroad companies were interested in Ohio mining there was not as much discrimination in rates as at present. Lately the railroads have become interested in the development of the West Virginia coal fields, and the rates have been reduced from the fields of West Virginia and Kentucky to such a point as to make it impossible for Ohio operators to compete.

It is argued that coal is shipped from West Virginia, Tennessee, Kentucky and even portions of Virginia to lake ports for 2 mills per ton per mile. Ohio operators would be perfectly satisfied with a rate twice as large and could then compete with the producers in the states named.

So far, the officials of the Ohio miners' organization have not answered the communication of John H. Winder, of the Sunday Creek Co., in which he requested the same working conditions that were granted the operators in eastern Ohio. The Sunday Creek Co. has devised a plan of weighing coal under the antiscreen act, which tends to make the miners produce a clean product. The coal is screened over the regulation 1½-in. screen, picking tables are provided and all dirty coal is thrown out. All the coal is then weighed together, free from the dirt.

#### **A Paper Mining Scale That Helps No One**

The new scale is hardly the cause for the closing down of the Hocking Valley mines, for it is if anything more favorable to the operator than the old. Nor is the shutdown due to the greater advantage gained by the Belmont County operators in their escape from unfavorable deadwork allowances, for Belmont County is also running slack where the mines are not still idle. The trouble is in the general business depression in Ohio and elsewhere and in the competition resulting from a more extensive reduction in the wage scale elsewhere. The result is also a climax of conditions which have been growing from year to year and which were inevitable though well-disguised by the relative prosperity of 1913.

The situation in eastern Ohio is quite desperate. There are 5000 men idle, and though there are resurrections at some places, they are far less frequent than was anticipated when the long strike came to an end. And in Perry County, in the Crooksville field, the conditions are very bad. The Tropic Mining Co., through George M. Jones, its president, has addressed a letter to its employees opening thus:

Has it ever occurred to you that it is possible to have a paper mining scale—one that means a high rate of wages but no work, thereby destroying earning power? The present mining scale, together with the Green mine-run law, has destroyed the coal industry in Ohio. In June, 1913, our Tropic mine, located at Tropic, Perry County, Ohio, worked 21½ days, and the payroll was \$19,642.55. In June, 1914, our mine was idle as the wage scale was not adjusted. In the month just passed, owing to the mining scale being too high to enable us to compete with other districts, we could not operate, and the payroll was \$457.05. The difference in payrolls, as shown, represents the loss to our employees, as West Virginia and Kentucky coal was used to supply our trade.

Petition will not be made for a referendum on the Gallagher bill. The United Mine Workers of America has decided not to circulate it as the cost would be too great, the need for it is but little and the funds of the union are at a low ebb.

#### **A Strike for Restoration of Old Scale in Eastern Kentucky**

On July 1 the miners employed by the Continental Coal Corporation, operating large mines in the Straight Creek field of Kentucky near Pineville, struck. On July 6 the miners employed by the Trooper Coal Co. in the Brush Creek field, near Trooper, Ky., and those employed by the New Bell Jellico Coal Co., near Four Mile, in the Greasy Creek field, went on strike. About 1500 men are involved in the three fields.

About three months ago, owing to the depressed condition of the coal market, the men were asked to take a reduction in wages and were told that as soon as conditions became such that the companies could afford it they would have the

old rates restored. The men thought that this restoration should date from July 1, and for that reason walked out. The mines in eastern Kentucky are working from one-third to one-half time on a restricted output, and the demand is the smallest known for this season of the year.

The reduction of wages in nonunion fields in times of depression is a standing invitation for an invasion of the union because by such means the market is taken away from union mines and the men deprived of the percentage they were enjoying. Such an invasion, with the union as weakened as it is now, is not likely to take place at present. But it is always well to maintain rates in bad times and let the non-union mines take their medicine with the others. But having consented to a reduction in wage rates in March when the winter business still continued, it seems the height of folly for the miners to look for a rise in rates in July—the dulllest part of the year.

#### **To Whom Must We Look for Redress if Tipples Are Burned?**

The suit for \$1,250,000 brought by the Bache-Denman Coal Co. against more than 200 officers and members of the United Mine Workers of America was dismissed by the United States District Court on July 6. This suit, it will be remembered, was for damages incurred by the plaintiff during a strike at its mines. On July 17, 1914, three mines were destroyed; on the 18th, another mine was burned, and on the 20th, a fifth was maliciously fired. Federal troops were called out and peace was restored; and the company, driven into bankruptcy, brought suit against its tormentors. The court now declares it has no jurisdiction. It is a distressing case of a failure of justice. Someone should be made to pay for the flagrant use of firearms and the torch.

#### **Further Developments in the Case of John R. Lawson**

Meetings are being held everywhere to obtain liberty for John R. Lawson, the executive board member of the U. M. W. of A., found guilty of murder. Meantime legal steps are being taken to dispossess the judge, Granby Hillyer, who condemned both Lawson and Zancanelli. Application was made to the Supreme Court of Colorado through the miners' attorneys, A. M. Belcher, of West Virginia, and H. N. Hawkins, of Denver, Colo., and an alternative writ of prohibition was awarded against the judge.

On July 12 argument was begun on the motion to prohibit Judge Hillyer from participating further in the trial of the so-called strike cases. He is alleged to be in sympathy with the Colorado Fuel & Iron Co. and to have been formerly an attorney for that corporation.

On the same day Judge Hillyer refused to give J. R. Lawson another trial. F. W. Clark, representing Lawson, was given 60 days in which to file a bill of exceptions and a 30-day stay of execution. The counsel desired the court to order that the prisoner be released on bond till the Supreme Court gave its decision, but this the court refused to do. A juror, Grover Hall, has sworn that he was induced to decide against the defendant by undue conduct on the part of a court bailiff.

James H. Brewster, who investigated the strike conditions for the state and testified before the Federal Industrial Relations Commission at Washington, has not been reappointed at the University of Colorado. He has been a bitter partison of the miners' interest. He has written a letter to his former associates at the University of Michigan declaring that he has been ousted for his political action.

## **COMING MEETINGS**

**The Southern Appalachian Coal Operators' Association** will hold its semiannual meeting July 23, 1915, at Knoxville, Tenn. J. T. McCoy, Knoxville, Tenn., secretary.

**The American Mine Safety Association** will hold a meeting July 23-24, at Billings, Mont. H. M. Wilson, 40th and Butler St., Pittsburgh, Penn., secretary.

**The United First-Aid Corps** of the 4th district, Delaware, Lackawanna & Western R.R. Co.'s coal department, will hold its third annual first-aid contest at Harveys Lake, Penn., on Aug. 14, 1915. Lewis Richards, 212 East Green St., Nanticoke, Penn., secretary.

**The Somerset County Miners' First-Aid Meet** will be held at Boswell, Penn., Sept. 4. The head of the local committee is F. W. Cunningham, Somerset, Penn.

**The American Mining Congress** will hold its 18th annual session at the Exposition Memorial Auditorium, San Francisco, Calif., Sept. 20-22, 1915. J. F. Callbreath, Majestic Bldg., Denver, Colo., secretary.



## Editorials

### The Trend of Conditions on New Contracts

In New England the important purchasers during the past month were the Bay State Street Ry., the New Haven R.R. and the International Paper Co. Of the 155,000 tons on which the Bay State Street Ry. (No. 802, Vol. 7, pp. 1005, 1085, 1128) invited bids, 95,000 tons, it is understood, was awarded to the Consolidation Coal Co. on Jenner coal (Somerset County, Pennsylvania) for delivery to the line points Quincy, Lynn and Chelsea, Mass., and Newport and Portsmouth, R.I., and 61,000 tons to the New England Coal & Coke Co. on New River for delivery at Beverly and at Mystic Wharf, Boston.

It is nothing new for this company to draw a share of its fuel from Pennsylvania districts, but the fact that the proportion awarded this year is so large is fresh evidence of the active competition on the part of shippers of Pennsylvania grades in this market. Somerset County coal had the preference among three grades, low-volatile being required on account of smoke laws in certain of the places.

As was generally predicted, the 250,000-ton order of the New Haven R.R. (Vol. 7, p. 1088) for engine fuel at different points and, through the Connecticut Co., another of 150,000 tons were both given to the New England Coal & Coke Co. So far as reported, the invitations did not get to shippers generally, and it is only a matter of conjecture what quality and price were embodied in the successful bid.

The 80,000 tons or so of the International Paper Co. (No. 236, Vol. 7, p. 1083) is for delivery at Portland to be railed inland, and it is reported that this order has been closed as usual with New River shippers at a price about on a level with a year ago. The Penobscot Chemical Fiber Co., taking about 30,000 tons at Bangor, has awarded its contract to the Spring Coal Co., Boston, also on a basis about the same as in 1914. These two orders disclose a determination on the part of West Virginia factors to hold their tonnage for the same figures as in other years.

The National Soldiers' Home, Randolph, Me., contract (No. 699, Vol. 7, pp. 877, 1087) shows the trend of low prices even on small business, particularly bituminous, the Gorman-Leonard Coal Co. having been the successful bidder at \$3.69 alongside, 30 miles or so up the Kennebec River.

Most of the contracts awarded so far this year by the various New York City departments have been at lower prices than in 1914. An instance of this is obtained from the bids on the Board of Education contract calling for 84,160 gross tons of anthracite coal and 4700 gross tons of semi-bituminous coal (No. 674, Vol. 7, pp. 836, 976, and 956; Vol. 8, p. 78). The prices in Manhattan Borough were from 28 to 33c. per ton lower than in 1914. The total amount of coal used by the city departments in 1914 was 576,198 tons, and reductions in the price of the

fuel used by all the many departments, if equal to those already secured, would reduce the coal bills nearly \$150,000.

One of the public service corporations in Chicago is out of the market for screenings until Aug. 1, and its buyer frankly states that he expects to have things his own way. This concern being a large consumer of fine coal, its failure to make purchases at this time is having a depressing effect on the current prices of screenings. No doubt the increasing production of domestic sizes, particularly in southern Illinois, largely accounts for the decline in the prices of fine coal. The softening is somewhat premature and was not expected to materialize until the middle of August. The volume of consignment screenings, however, is small, and there is no disposition to forward fine coal from the mines without specific orders.

No improvement has developed in the volume of business handled over the lake routes. There is a congestion at the upper lake ports, but prices for lake delivery are well maintained despite the depression. More West Virginia coal is moving via the lakes to Northwestern points than Ohio tonnage, which is very slow in getting under way.

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### Bunkering Supplies of the World

The United States Department of Commerce and Labor estimated that 75,000,000 tons of coal was consumed per annum for bunkering purposes, and it would seem that this estimate was too low as applied to 1913. The *Iron and Coal Trade Review* (London, England) made the same estimate in 1912. D. A. Thomas later estimated that about 60,000,000 tons of British coal was used as bunker fuel in the foreign trade. Adding 8,000,000 tons to this, covering the bunker coal from this country, leaves only 7,000,000 tons for the rest of the world.

Bunker coal supplied by other countries is about as follows: Germany, France and Holland 2,000,000 tons altogether; Austria and Natal about 2,000,000 tons each; India 1,000,000; Japan 3,000,000 tons. This brings the gross bunkering tonnage for the world up to 78,000,000. In addition to this a large part of the output of China and Chile is used for bunkering purposes, while New Zealand, Canada and Russia are also factors that must be considered.

It is interesting to note that there are about 300 more or less important steamship coaling ports in the various countries of the world. Great Britain has six ports alone that supply over 1,000,000 tons of coal per year for this trade.

British coals are used chiefly on the eastern Atlantic and East Coast of South America, but the more important West Indies stations use United States coal. Port Said, Suez and Aden use the British coal mostly. On the coast of India and Ceylon, which includes Karachi,

Bombay, Colombo, Madras, Calcutta and Rangoon, coal from Natal, India and Sumatra supplies the bunkers.

At Singapore and along the coast of Burma, large amounts of Japanese and Indian coal are used, as well as Australian and some Welsh and Natal coal. The Australian stations of course use their own coal mostly, and the same applies to New Zealand. Japanese coal is an important competitor in the East Indies, as it is also further north in the Pacific, although considerable quantities of Chinese, Australian and Welsh coal are also found in these markets. A peculiar condition is that scarcely no United States coal is used for bunkering on the West Coast of South America, the supply coming almost entirely from Great Britain, Australia or Chile. Even along the North American Pacific Coast a great part of the bunkering coal is from Australia or British Columbia.

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### Selecting Workmen and Machines

The problem of coal production is an intricate one. There was a time when the man who successfully operated a mine was, or at least was supposed to be, primarily a geologist. Times have changed, and today many coal producers with long records of success behind them may be unable to distinguish a Paleozoic from a Mesozoic formation. These men, however, know and know well how to handle the two factors upon which success or failure in mining chiefly depends. These factors are men and machines.

Leaders of men are born, not made. The ability to successfully direct the efforts of other people is as truly a natural gift as is music. While each may be trained and developed to a greater or less degree in different individuals the foundation of natural and inborn aptitude must be present in the beginning if marked success is to be attained.

The direction of human effort is a problem decidedly different from the selection and manipulation of machinery. The personal equation of each man—his temperament, inclination, likes and dislikes—varies decidedly from that of his neighbor. Nature does not deal in duplicates nor does she follow modern methods of manufacture so far as interchangeability is concerned.

On the other hand, man in his efforts at creation and invention aims almost invariably at "quantity production." Each separate part and individual element entering into a certain machine or mechanism is made, within certain well-defined and predetermined limitations, a duplicate of like parts or elements entering into the construction of the same or similar machines. Furthermore, the quality and size of parts are tested, tried and maintained by frequent analyses, physical tests and gagings, so that the quality and adaptability of the parts for the purpose in hand are at all times definitely known.

This care exercised in the manufacture of many of the articles employed in and about the coal mines is well exemplified in the description of the processes employed in the making of wire rope appearing on page 84. As a result of the constant care and strict supervision employed in its manufacture the maker of rope knows within an extremely small margin when his product leaves his mill what weight it will lift, what size of sheave it may pass around without excessive wear, and many other con-

siderations of benefit to the user if he would secure the best service possible for the money he is about to invest.

Wire rope is only one of many mechanical devices indispensable to the operation of a modern coal mine. It may, however, be taken as a good example of mechanical apparatus, the failure of which may not only seriously disturb the equilibrium of the working organization, but may also endanger human life.

If a hoisting rope, for example, is not selected with due regard to the load it will be required to handle; if the sheaves over which it travels are not of the proper diameter; if the engine drum is too small or is improperly grooved, or if the rope is not adequately and periodically lubricated and treated with a suitable compound to shield it from the corrosive action of the elements and mine gases, the result will be inevitable, and only the time needed to accomplish the rope's failure will be uncertain.

Coal mining today is a dual proposition, success depending one-half on the efficiency and morale of the working force and one-half on the efficiency and reliability of the mechanical equipment and power supply. There is therefore quite as much room for the exercise of good mechanical engineering in the selection, care, maintenance and operation of the inanimate equipment as for so-called "human engineering" in the selection, organization and manipulation of the workmen employed.

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### Market Abuses by Retailers

Coal shippers have been discussing recently a sales feature which is not entirely satisfactory from their standpoint. In a number of Western cities local dealers having retail yards not only sell coal in wagon-loads from their bins, but also do a jobbing business in carload shipments, and the wholesale shippers complain that they are competing with them on carload business.

On the other hand, the retailers are most insistent through the medium of their organizations, formed for their protection, that the operator and wholesaler shall ship coal only to regular members of these associations in good standing and shall protect the retailers from what they term the illegitimate sale of coal in carload lots direct to the consumer or to parties that have no yard facilities. This position on the part of retailers is acknowledged to be correct by the wholesalers.

The question has now been asked why the producers and wholesale shippers should not be protected against this form of competition on the part of retailers. It is felt that the sale of coal in carload lots to manufacturers and consumers who have sidetrack facilities and do not buy coal in wagon lots should be strictly confined to wholesale shippers, if the retail yards are to continue to have the protection that has been thrown around them in the past by the wholesalers.

The operators assert that it is a poor rule that does not work both ways, and several of them have expressed themselves forcibly to the effect that the practice of the retailers in selling coal in carload lots has had a most detrimental result, in creating unnecessary competition and causing unwarranted price reductions. The wholesalers take the position that if they protect the retailers by not shipping direct to their customers the retailers should keep their hands off the carload business and give wholesalers and operators exclusive control of that trade.



## Discussion By Readers

### Value of Coal Analyses

*Letter No. 3*—I read with interest Mr. Coupland's reply to my inquiry on this subject, *Coal Age*, June 26, p. 1111. I find that while he agrees with me in some respects, he regards a few of my statements as "manifestly unfair."

The rate of \$4 or even \$6 named by Mr. Coupland for making a complete coal analysis is certainly reasonable; and I freely admit that, with this low rate, more coal consumers should analyze their coal, especially when they are using large quantities of fuel. The small consumer, however, could hardly afford to pay even this low price for an analysis of the product. My idea of the prices charged for this work was formed from my experience several years ago, when I assisted a prominent engineer who charged \$25 for making such analyses. I wrongly assumed that the present price ranged around that figure.

However, I am still firm in the belief that coal-testing methods can be improved. As previously stated, I think it is only logical that the coal operator should test his shipments, which I am pleased to learn from Mr. Coupland's letter is being done by many up-to-date mines today. I would ask, then, Why is it necessary that another test should be made by the purchaser of the shipments from such mines? It is customary for manufacturers of food products to advertise their goods as being 90, 95, or 99.5 per cent. pure, and the public buy these goods without questioning the truth of the claim. Occasionally such products are tested by the Government, and also, it may be, by some large buyers. Such a method is surely more satisfactory to all concerned than for the buyer to duplicate the work of the manufacturer, which would increase the cost to the consumer.

I can see no good reason why the mine operator should not be compelled to state the amount of moisture, volatile matter, carbon, ash, etc., contained in the coal of each shipment. The results of such an analysis could then be tacked onto each car shipped or on each barge loaded. Had this been done in the case of the 600-ton barge of coal mentioned by Mr. Coupland, there is no question in my mind but that the reported analysis would have shown the correct percentage of ash contained in the coal, and the sugar refinery would not have purchased that coal with this information before them. I do not believe that there would have been any attempt at deception, and I do not assume that there was any attempt on the part of the coal operator to deceive the purchaser of that coal. The coal did not meet their requirements and was rejected, but had this information been furnished with the bill of lading the loss of time and annoyance would have been avoided.

Under the present arrangement I do not blame mine operators for shipping coal without special regard in most cases for its quality, leaving that question largely to the purchasers to discover for themselves. As previously stated, I believe that there should be a change in this

regard. A change would have an advantage in that small buyers would get just as good coal as is secured by the larger consumers who are able to test every shipment of coal. My contention is that a declaration of the fuel value of each shipment should be made by the coal operator. Such a declaration would certainly be fair to all parties, and would properly inform the consumer of the quality of his purchase.

N. G. NEAR.

New York City.

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### The Purchase of Coal

*Letter No. 1*—I was interested and somewhat amused in reading the article entitled "The Purchase of Coal," *Coal Age*, May 8, p. 800, to note the many statements that, to say the least, are misleading.

At the beginning of the article, the author presents two questions which he admits "may seem odd," but which he claims bring forward "intensely practical answers." These questions are, "Why does the consumer purchase coal?" and, "How does the consumer purchase coal?" He answers the first question by stating that "coal is bought for heating purposes." This question is indeed odd and altogether unnecessary. The consumer purchases coal because he needs it and cannot get it without buying it in the market. Coal is not always bought for "heating purposes." It may be required for the manufacture of gas or coke or used in other industrial ways. I would suggest a more rational question would have been to ask, For what purpose does the consumer purchase coal?

In answer to the second question, I would say that coal is purchased either on a specification basis or at a fixed price per ton for a particular kind of coal. The author's reference to the purchaser of coal being "forced by current practice to buy tons of coal, regardless of the true value to him," and the statement that he is "paying for mere weight of coal," and his suggestion that, "there is more involved in the purchase (of coal) than mere tonnage," seem needless. As a fact, the consumer is not forced to buy his coal "regardless of the true value to him." He is always in a position to insist upon a certain heating value per ton.

Buying coal without specification does not necessarily mean that the purchaser is paying for mere weight of coal. If one buys Quemahoning coal from a reputable concern that mines and sells Quemahoning coal, he is reasonably sure to get that coal, with possibly some variation in heating value, but of a certain standard. If one buys Colver coal from the company mining that coal, he is certain to get nothing else; if one buys Castner, Curran and Bullitt New River coal, he is equally sure to get that coal. All of these coals have a certain minimum heating value, as the general consumer knows from experience. In other words, every large purchaser of coal knows about what results he should get from a given coal, and buying coal on its name, at a fixed price per ton, without any further guarantee as to its heating value,

is not so much going it blind, as intimated by the writer of the article.

All locomotive fuel in this country and by far the greater part of the coal consumed in stationary plants and that for marine use are bought on the name and the reputation established as a result of many tests and long-continued use. There are other items that affect the purchase of coal besides its heating value. For railroad use, especially, the questions of transportation and certain financial considerations enter into the problem of the purchase of coal. It is not always the coal having the highest heating value that is the most economical fuel for a given plant; the price is an important factor, also the behavior of the coal in the furnace.

When it is possible to use successfully Illinois washed screenings, at \$2.30 per ton, with a heating value of 12,200 B.t.u., the question may be asked, Would it be wise to buy New River coal at \$3.30 per ton, having a heating value of 14,900 B.t.u.? Many steam plants have been purposely altered so that they could burn coal having a low heating value and thereby reduce the cost of operation. It is the cost of efficient operation that must finally control the selection and purchase of coal for fuel purposes. The problem is to secure the highest plant efficiency at the least outlay for fuel, and this involves the question of a suitable furnace.

The diagrams presented in the article to which I have referred as illustrating graphically "how one pound of coal may have great significance when all costs and efficiency in the plant are considered" are misleading, because they do not take into consideration the different varieties of coal and the difference in character and composition of the volatile matter.

The statement that "the content of fixed carbon and volatile matter is a measure of the productive cost" is not always true, assuming that by "productive cost" is meant the heating value of the coal per unit price. Coal, for the same percentage of combustible (fixed carbon and volatile matter), may have wholly different heat values. Thus, a coal having certain percentages of combustible and ash may have a lower heating value than one with a less percentage of combustible and more ash. As proof of this statement compare the following actual analyses of five different coals:

1. Combustible, 95.69%; ash, 4.31%; 14,272 B.t.u.
2. Combustible, 93.98%; ash, 6.12%; 14,841 B.t.u.
3. Combustible, 94.23%; ash, 5.77%; 14,283 B.t.u.
4. Combustible, 94.20%; ash, 5.80%; 14,820 B.t.u.
5. Combustible, 94.07%; ash, 5.93%; 14,549 B.t.u.

It is wrong to assume that the volatile matter of coal is wholly combustible and that the percentage of ash represents all the incombustible matter. The first two coals mentioned contain respectively 7.98 per cent. and 1.59 per cent. of oxygen, which being combined, is as nonproductive an element as the ash. This does not seem to have been considered in preparing these diagrams. The author admits that the first diagram represents "a purely hypothetical coal not found in nature"; but claims that the other four diagrams "are representative of coals on the market and show a common range of characteristics." I do not think that coals containing 24 and 32 per cent. of ash are at all representative or that their characteristics are at all common. I would like to ask if anyone can name a soft coal, offered on the market as steam coal, that would show so much ash. It is need-

less to state that diagram No. 2, representing a coal with 8 per cent. ash, shows better results than the three following diagrams where the ash runs 16, 24 and 32 per cent. respectively.

Again, the statement that "it is generally conceded that coal high in ash and sulphur is harder on all handling apparatus than a coal of lower ash and sulphur content," is not always true. For instance, a coal with 4 per cent. of ash that fused readily and made a soft, sticky clinker would certainly prove more injurious to the grate and furnace walls than a coal having 8 per cent. ash and a high fusing point, which would yield a light, porous clinker that is easily removed. It does not follow, either, that a coal with 1.5 per cent. sulphur would be more injurious than a coal with 0.75 per cent.

In fuel consumption, the heat available to the boilers and not the "evolution of heat in the furnace" is the controlling factor. Also, the evolution of heat in boiler furnaces will not always "vary directly with the heat content of the coal used."

Again, it must be remembered that a low consumption of a comparatively high-priced coal will often result in a higher cost of operation than a larger consumption of a cheaper coal. The coal best adapted to the conditions of the plant and load may not be the highest grade of coal, the purchase of which the writer of the article seems to advocate. For example, New River coal would not be the best adapted for use in a furnace designed to burn Illinois screenings, although the former is certainly a high grade of coal. Cost and adaptation are the vital factors in determining what coal should be used.

It may be possible to operate a plant with a high degree of efficiency when burning a coal of comparatively poor quality, provided it can be obtained at a low cost and meets the required conditions. The author does not state what he means by "daily tests" or "weekly averages," the results of which he suggests the consumer should send to his dealer, thinking thereby to place "both parties to the contract on an equitable footing." It is not clear what is intended by this suggestion.

In regard to the character of the tests to be made, if the coal is bought on a specification basis, the test will depend on such specifications. But when coal is bought otherwise, it is not necessary to determine the heat value for the same character or kind of coal, but only its ash content. For instance, if a Pocohontas coal is being used, any variation in ash will cause a corresponding variation in heat value, and a determination of the former is all that is required. Unless the coal is to be used for some special purpose, it is also unnecessary to determine the sulphur content. One important item that the author has failed to mention is the fusing point of the ash. In practice, high heat value will not be available if the coal clinkers badly. Sulphur is not a true measure of the liability of a coal to clinker, unless the nature and distribution of the sulphur compounds are known, and even then it would be somewhat of a guess.

At a well-managed steam plant, boiler tests are generally thought to be necessary. The determination of fixed carbon and volatile matter are practically unimportant, except when called for by specification or where there is a smoke ordinance in force. While the calorimeter test is simple enough in principle, the actual performance of the test is far from simple and requires much care and skill on the part of the attendant.



The article does not mention the important question of getting representative samples when testing a shipment of coal. The closing statement that "uniform fuel means uniform and economical operation" is untrue, since it is quite possible to have a uniform grade of coal and a high cost of operation, owing to poor firing or bad condition of furnace and other like causes of waste.

The subject of the purchase of coal is too large to be treated in a short article, and most general statements relating to methods and requirements are subject to modification in one way or another. The fact that so many complications enter into the purchase of coal on the market has led many large consumers to go back to the old way of buying coal by weight and reputation. It has also caused many coal operators to refuse to sell coal on analysis, except at a higher price. The United States Government, one of the largest consumers and one of the first to buy coal on an analysis basis, has made numerous changes in its specifications and has not yet reached an entirely satisfactory basis.

The American Society for Testing Materials has had a committee working on standard coal specifications since 1909. This committee was composed of representatives of the largest consumers and miners of coal, as well as prominent engineers. The committee has as yet been unable to make a final report owing to differences of opinion and practice. For this reason it is well to make only carefully guarded statements on this subject.

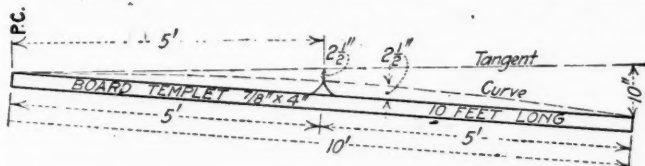
F. R. WADLEIGH.

Philadelphia, Penn.

## Laying in a Mine Track Curve

Referring to the reply to the inquiry of Ostel Bullock, COAL AGE, June 12, p. 1036, permit me to describe a method of laying in such a curve that has been used with good success. It is as follows:

A straight-edge 10 ft. long and 3 or 4 in. wide is made from 7/8-in. good dressed pine. At the center on



one edge of this strip is constructed a projection having a height equal to the middle ordinate of a 10-ft. chord of the curve it is desired to lay out. For a 60-ft. radius, the middle ordinate of a 10-ft. chord is  $2\frac{1}{2}$  in. For a 100-ft. radius curve, which is used more frequently than curves of 60 ft. radius, the middle ordinate of a 10-ft. chord is  $1\frac{1}{2}$  in. The middle ordinate of a chord is always one-fourth of the tangent deflection for that chord. Hence, the middle ordinate  $o$  of any chord  $c$  for any radius  $R$  may be calculated by the formula

$$o = \frac{c^2}{8R}$$

Assuming that the  $PC$  point of the curve has been located on the center line of the entry, which is the point where the curve begins, the first step is to locate a point on the curve 5 ft. distant from the  $PC$  point by measuring an offset from the center line of the entry. This offset is equal to the middle ordinate of the 10-ft. chord, which in this case is  $2\frac{1}{2}$  in.

Now, having located the first point on the curve 5 ft. from the  $PC$  point, lay the straight-edge on the floor of the entry in such a position that one end corresponds to the  $PC$  point and the top of the projection at the middle of the template corresponds to the 5-ft. point just located. The other end of the straight-edge will now indicate a second point on the curve, 5 ft. beyond the first point, the straight-edge itself corresponding to a 10-ft. chord.

The template is now moved forward 5 ft. and when one end is made to correspond with the first 5-ft. point of the curve and the top of the middle projection corresponds to the second 5-ft. point on the curve, the other end of the template will indicate a third point on the curve 5 ft. distant from the second point.

By thus repeating the process, the entire curve is run, the accuracy of the work depending on the care taken in establishing each successive point. If a transit is available, it is of course much better to locate points on the curve by its use in the ordinary way, deflecting the proper angle from the tangent for the longest chord that permits a clear sight in the entry. When this is done, intermediate points can be established by the use of the template as described. However, when a transit is not available, the entire curve can be laid in with an error not exceeding a few inches if care is taken in performing the work.

G. G. LONG.

Curtisville, Penn.

## Mining Laws and Legislation

*Letter No. 5*—That the bituminous mining laws of Pennsylvania are inefficient in the power they confer on the mine inspector to enforce the provisions made for the safeguarding of life was very vividly and emphatically demonstrated in the explosion at the No. 3 mine of the Smokeless Coal Co., at Ferndale, a suburb of Johnstown, in the latter part of May, 1915, when nine lives were sacrificed to a vagary.

An examination of the mine after the explosion, by a committee of four mine inspectors, revealed the fact stated in their report that the explosion was caused by a shot fired in a live entry, which released a pocket of gas and caused an initial explosion that, assisted by the coal dust present, was extended so as to cover a large section of the mine and reached the ventilating machinery on the surface.

In this case, the coroner's jury returned a verdict that the victims met their death under the circumstances stated, which were made possible by the failure of the officials of the company to follow the suggestion of the district mine inspector and install safety lamps in that part of the mine. It seems to me that the jury did not return a just verdict in the placing of the blame. It would have been just as consistent for them, under the circumstances, to have returned a verdict placing the guilt upon the mine inspector for not enforcing his suggestion.

Under art. 10, sec. 1, of the bituminous mine law, the inspector can exercise discretionary powers in enforcing the installation of safety lamps wherever explosive gas can be detected by an approved safety lamp, while under art. 28, sec. 2, his discretionary powers are revoked as not applying "to any mine wherein explosive gas is being generated only in live entries." In the discussion of

mining laws and legislation, in Letter No. 36, COAL AGE, Mar. 6, p. 433, a writer called attention to this discrepancy and contradiction in the law and pointed out the danger of the defect in just such a case as the one quoted here, citing as an illustration the Cincinnati mine disaster that occurred Apr. 23, 1913.

The present mining law has now been operative for a period of four years, and the executive officers of the state have undoubtedly been aware of the existence of this clause restricting their authority in the enforcement of proper safety provisions and the danger necessarily arising from such restriction. Why then, it may be asked, have they not made some attempt to have this legal defect removed? They are the men who are held responsible for the enforcement of the law and to a strict accountability for the accidents occurring in their several districts; and it seems to me that they are the men who should see to it that the law is explicit and comprehensive enough to be enforced when such enforcement becomes a matter of necessity. There seems to be something radically wrong on the part of some one when a law that permits lives to be put in jeopardy is allowed to remain operative, while no effort is made for its annulment.

The primary object of law is to secure the greater safety of lives and property, but here is a proviso that tends to

defeat that object. If the mine inspectors will not take any active measures to have this section repealed, then the mine officials, together with the miners themselves, should take active measures for its abolition. The present case is an instance where the inspector's duty was restricted to a suggestion and the officials' compliance was optional. Both parties, in pursuing the course they did, were within the law; and I would ask, Why is it claimed that the operators were at fault? Would not a more just verdict, in this case, have stated that the nine victims were legally murdered, since their death resulted in full compliance with the law?

The suggestion of the inspectors' committee was simply a synopsis of the legal provisions for safety and contained no reference to the dangerous and objectionable section to which I have referred, either as to its existence, revision or elimination.

In closing permit me to offer a suggestion that appeals to me as worthy of the careful consideration of mining men in general and of legislators in particular. The suggestion is that as a safety precaution boreholes be kept not less than 3 ft. in advance of all holes drilled to fire a blast, on both ribs in all solid workings, whether the mine be gaseous or nongaseous.

A. M. INER.

—, Penn.

# Study Course in Coal Mining

BY J. T. BEARD

## The Coal Age Pocket Book

**Effect of Pressure on Fusion**—Pressure acts to oppose increase of volume. Some substances, as water, for example, expand when passing from the liquid to the solid state and an increase of pressure therefore **lowers the freezing point** of such substances. The decrease of atmospheric pressure at high altitudes facilitates the formation of ice, though to a less degree than other more potent causes.

On the other hand, some substances, as wax, contract when solidifying, and an increase of pressure then acts to **raise the freezing point** or point of solidifying. In other words, an increase of pressure acts to assist the melting of wax and similar substances, while it retards that of ice.

**Melting Points of Substances**—The melting point of substances depends largely on their purity and treatment. For this reason different authorities often give different values for the same substance. The following table gives the approximate melting points and the heat of fusion, in British thermal units per pound, for the substances named:

### MELTING POINTS AND HEATS OF FUSION OF SUBSTANCES

Substance	Melting Point, Deg. Fahr.	Heat of Fusion, B.t.u. per Lb.
Aluminum	1211	138.6
Beeswax	148	76.1
Copper	1980	77.4
Gold	1947	...
Ice	32	144.0
Iron, cast (white)	2000	41.4
Iron, cast (gray)	2400	59.4
Iron, wrought	2820	...
Lead	620	9.0
Nickle	2600	8.3
Platinum	3100	48.6
Silver	1764	37.9
Spermaceti	120	66.5
Steel	2462	36.0
Sulphur	235	16.2
Tallow	92	...
Tin	450	25.6
Zinc	786	50.4

To express heat of fusion in calories per kilogram:  
B.t.u. per lb.  $\times 5/9$  = cal. per kg.

**Difference Between Melting and Freezing Points**—The melting point of a substance does not always correspond exactly with its freezing point, even at the same pressure. The melting point of ice is more uniformly constant than the freezing point of water, and for this reason is taken to indicate the zero of the centigrade scale (32° F.).

The solidification of a liquid is generally accompanied with crystallization, and the formation of the crystals is often delayed in a quiet medium, so that the temperature of water free of air may fall as low as 5 deg. F. when perfectly quiet and not freeze. But if the water at this low temperature be stirred or jarred the whole will instantly change to ice or become solid.

## The Coal Age Pocket Book

**Effect of Pressure on Vaporization**—Pressure acts to retard vaporization. An increase of pressure, therefore, **raises the boiling point** of water and other liquids. For the same reason a decrease of pressure lowers the boiling point of liquids. At an elevation of 10,000 ft. above sea level, under normal atmospheric conditions, pure water boils at 193 deg. F., and at an elevation of 15,000 ft. the boiling point, for the same normal atmospheric conditions, is reduced to 185 deg. F.

**Vaporization, Evaporation, Boiling**—Vaporization is a general term relating to the formation of vapor, or the change from a solid or liquid state to a vaporous or gaseous condition, without regard to whether the change is slow or rapid. The term "evaporation" relates to the slow vaporizing of a solid or liquid that takes place at its surface when the latter is exposed to an atmosphere that is not fully saturated. The evaporation of a liquid may also be caused by the application of heat.

The term "boiling" refers to the violent ebullition that takes place throughout the mass of a liquid, caused by the formation of vapor in the liquid and its escape to the surface. Boiling results from the application of heat to the liquid, or may result from a sudden decrease of pressure.

**Boiling Points of Liquids**—A liquid boils when raised to such a temperature that the tension of its vapor is equal to the pressure at its surface. At this point the liquid becomes vapor. The term "boiling point," as commonly used, however, refers to atmospheric pressure at sea level, unless otherwise stated. The following table gives both the freezing and the boiling points of a few liquids of interest in mining:

### FREEZING AND BOILING POINTS OF LIQUIDS

Liquid	Freezing Point, Deg. Fahr.	Boiling Point, Deg. Fahr.
Alcohol	-202	172
Ammonia	...	140
Linseed oil	-18	597
Mercury	-38	676
Nitroglycerine	45	...

**Mechanical Equivalent of Heat**—Since heat is assumed to be a form of energy, it must be capable of performing work, which is expressed in foot-pounds. This has given rise to what is properly called the "mechanical equivalent of heat." It is the theoretical amount of work expressed in foot-pounds or kilogram-meters per unit of heat absorbed.

The values of the several heat units are as follows:

	Foot-Pounds	Kilogram-Meters
1 British thermal unit	778	107.5
1 calorie	3087	426.8
1 pound-calorie	1400	193.5

The reverse of these values is as follows:

	B.t.u.	Cal.	Lb.-Cal.
1000 foot-pounds	1.285	0.324	0.714
1000 kilogram-meters	9.297	2.343	5.168



## Inquiries of General Interest

### Testing Safety-Lamp Glasses

Kindly describe the tests to which glasses for use in safety lamps are subjected by the Federal Bureau of Mines before they are approved by the bureau.

FIREBOSS.

Floreffe, Penn.

The Federal Bureau of Mines has outlined in schedule 7, issued by the bureau Jan. 30, 1915, certain tests of miners' safety lamps that will enable the bureau to establish a list of so-called permissible safety lamps for use in mines in which explosive gas is liberated. The schedule is entitled "Procedure for Establishing a List of Permissible Miners' Safety Lamps." Safety-lamp glasses are actually tested twice—once in the fully equipped lamp and again when separated from the lamp. The first set of tests is for the purpose of determining the strength of the glass to resist breakage when in place in the lamp. The three tests are as follows:

1. The lamp fully equipped is suspended at a clear height of 6 ft. above a wooden floor and dropped. The lamp is subjected to five trials. If the glass is broken once only, the lamp passes the test. If the glass is broken twice, the lamp is subjected to five more trials, when two more breaks will determine the failure of the lamp to pass the test.

2. A lead disk, 3 in. in diameter and  $1\frac{3}{4}$  in. thick, weighing 5 lb., is dropped from a clear height of 6 ft. onto the lamp standing vertically on a wooden floor beneath. Should the glass break in the lamp, two more trials are made, each with a different glass fitted in the lamp. A second break in these three trials will determine the failure of the lamp to pass this test.

3. The lamp is suspended by means of claws gripping the top of the lamp, at a height of 7 ft. above the floor. A lead disk,  $4\frac{3}{4}$  in. in diameter and  $1\frac{1}{2}$  in. thick, weighing 10 lb., is attached to a cord the other end of which is fastened to the center of a metal plate that is firmly attached to the bottom of the lamp. When all is ready, this weight is dropped through a clear distance of 6 ft., the purpose being to test the resistance of the lamp to being pulled apart. The lamp is subjected to three trials, and if any one of these trials shows the lamp to be defective in any way or lacking the necessary security in gas, the lamp fails to pass the test.

These three tests are made in succession on one lamp, and cracking of the glass is regarded as a breakage.

Lamp glasses designed for use in safety lamps are subjected to two tests when separated from the lamp. These tests are designed to show the resistance of the glass to breakage by reason of a blow or by reason of a sudden change of temperature, such as may be caused by water coming in contact with a hot glass. These tests are as follows:

1. A lead disk,  $2\frac{1}{2}$  in. in diameter and  $\frac{1}{2}$  in. thick, weighing 1 lb., is dropped from a clear height of 4 ft. onto the glass placed in a vertical position on a wooden

floor. Twenty glasses of a kind are tested, and two failures by breakage cause the rejection of this type of glass.

2. Ten glasses of a kind are heated in an air bath to a temperature of 212 deg. F., and at that temperature are removed from the bath and immediately plunged into water at a temperature of from 60 to 65 deg. F. One failure by breaking or cracking of the glass in these 10 samples will cause the rejection of this type of glass.

Where lamps have two glasses, the outer glass is tested to determine its resistance to a blow, while the inner glass is tested to determine its ability to withstand change of temperature only.

### Electric-Power Transmission

Kindly explain what size of wire would be required to carry an electric current sufficient to charge a storage-battery locomotive equipped with 50 Gould special lead cells of 300-amp. capacity. The charging station is 3000 ft. from the substation. The pressure at the substation is 250 volts, while that required for charging is 125 volts.

JOHN F. BUTLER.

Roderfield, W. Va.

The question, as stated, is slightly ambiguous in respect to the current capacity. It is not certain from the wording of the question whether the charging rate is 300 amp. or whether the capacity of the cells is 300 ampere-hours, since it is customary to give the capacity of storage-battery cells in ampere-hours.

However, assuming that the charging rate is 300 amp., and allowing for a line drop of  $250 - 125 = 125$  volts, the circular mils of wire required to transmit a current of 300 amp. 3000 ft. and return is given by the formula

$$\frac{21.6 \times 300 \times 3000}{125} = 155,520 \text{ circ. mils.}$$

A No. 000 copper wire has a sectional area of 167,800 circ. mils, while a No. 00 wire has an area of 133,100 circ. mils. Since the result obtained above lies between these two values, a No. 000 copper wire should be used for this transmission.

Assuming, however, that the cell capacity is 300 amp.-hr. and taking the efficiency of the storage cells as 80 per cent., the required input when charging is  $300 \div 0.80 = 375$  amp.-hr. It is customary to assume an 8-hr. charging rate; and, in that case, the charging current would be  $375 \div 8 = 47$  amp., nearly. Therefore, taking the required charging current as 50 amp., the circular mils of copper wire required to transmit a current of 50 amp. 3000 ft., allowing for a line drop of 125 volts, is

$$\frac{21.6 \times 50 \times 3000}{125} = 25,920 \text{ circ. mils.}$$

For this transmission, a No. 6 copper wire should be selected, having an area of 26,250 circ. mils, as taken from electric-wire tables.

## Examination Questions

### Illinois Examination for Mine Managers, June 14, 1915

(Selected Questions)

**Ques.**—Find the specific gravity of a mixture containing 1 cu.ft. of air, 2 of hydrogen, 3 of carbon dioxide and 4 of nitrogen.

**Ans.**—Hydrogen being the lightest of these gases, it will be more convenient to refer the density of the other gases to this element as unity; thus, the density of air referred to hydrogen is 14.4; that of carbon dioxide is one-half its molecular weight, or  $\frac{1}{2}(12 + 2 \times 16) = 22$ ; while that of nitrogen is expressed by its atomic weight, 14. The volume of each gas multiplied by its density expresses the relative weight of the gas referred to hydrogen as unity, which gives the following:

	Vol.		Density		Weight
Air .....	1	×	14.4	=	14.4
Hydrogen .....	2	×	1	=	2
Carbon dioxide .....	3	×	22	=	66
Nitrogen .....	4	×	14	=	56
Totals .....	10				138.4

The density of this mixture referred to hydrogen as unity is then found by dividing its relative weight by the total volume of the mixture; thus,  $138.4 \div 10 = 13.84$ . That is to say, the mixture of these gases is 13.84 times as heavy as hydrogen, volume for volume.

To find the specific gravity of this mixture referred to air as unity, divide its density referred to hydrogen by the density of air referred to the same standard. Thus,  $13.84 \div 14.4 = 0.961$ , which is the specific gravity of the mixture referred to air as unity.

**Ques.**—A pair of hoisting engines has cylinders 30 in. in diameter and the stroke is 5 ft. If the steam pressure in the boilers is 90 lb. per sq.in., how many revolutions per minute will these engines be running when generating 1000 hp.?

**Ans.**—Taking the boiler pressure as 90 lb. gage and allowing a drop of, say, 3 lb. between the boiler and the steam cylinders of the engine, and assuming a two-third cutoff for a slide-valve engine, the mean effective pressure in the steam cylinders may be estimated as 68.6 lb. per sq.in. The total area of the two cylinders is  $2(.7854 \times 30^2) = 1413.7$  sq.in. Since the engine makes two strokes per revolution, the work performed by the two cylinders during a single revolution of the engine is  $68.6 \times 1413.7 \times 2 \times 5 = 969,800$  ft.-lb. Then, since 1000 hp. is  $1000 \times 33,000 = 33,000,000$  ft.-lb. per min., the speed of this engine to develop this power must be  $33,000,000 \div 969,800 = 34$  r.p.m.

**Ques.**—What is the horsepower required to drive a fan producing 60,000 cu.ft. of air per minute with a water gage of 1.7 in.? If the quantity be increased to 100,000 cu.ft. per min., how much additional power will be required?

**Ans.**—For a circulation of 60,000 cu.ft. per min. under a water gage of 1.7 in., the power on the air is  $(60,000 \times 1.7 \times 5.2) \div 33,000 = 16 +$  hp. Then assuming

an efficiency of 60 per cent. for this circulation, the power required to drive the fan is  $16 \div 0.60 = 26.6$  hp.

Since the power on the air varies as the cube of the quantity of air in circulation, the effective horsepower required to increase this air volume from 60,000 to 100,000 cu.ft. per min., calling the required hp.  $x$  is

$$\frac{x}{16} = \left(\frac{100,000}{60,000}\right)^3 = \left(\frac{5}{3}\right)^3 = \frac{125}{27}$$

$$x = \frac{16 \times 125}{27} = 74 + \text{hp.}$$

The gross horsepower required to drive the fan in this case is  $74 \div 0.60 = 123$  hp.

**Ques.**—An entry contains a mixture of 65,000 cu.ft. of firedamp and air. If 10 per cent. of firedamp is present, find the additional quantity of air necessary to dilute it to 2 per cent.

**Ans.**—The volume of marsh gas present in this firedamp mixture is  $65,000 \times 0.10 = 6500$  cu.ft. If this quantity of gas is 2 per cent., the total volume of the mixture after the addition of air is  $6500 \div 0.02$  equals 325,000 cu.ft. The quantity of air required to be added to produce this volume is then  $325,000 - 65,000 = 260,000$  cu.ft. of air.

**Ques.**—If a wedge is 12 in. long and 3 in. thick, and the pressure 100 lb., what weight will be lifted?

**Ans.**—Assuming the wedge is 3 in. thick at the butt and disregarding friction, the ratio of the pressure applied to drive the wedge to the weight lifted is equal to the ratio of the thickness of the butt to the length of the wedge. Since the length of the wedge is four times the thickness of the butt in this case, the theoretical weight lifted by a force of 100 lb. will be  $4 \times 100 = 400$  lb.

**Ques.**—You are asked to state what you understand by the term "potential" and "potential difference," in electrical appliances.

**Ans.**—The term "potential," as applied to electricity, describes the electrical pressure required to pass a certain current through a conductor having a given resistance. Potential in electricity corresponds to pressure or head in hydraulics.

The term "difference of potential" is the difference of electrical pressure between two points in the circuit. In other words, it is the effective pressure required to pass the current through that section of the circuit lying between the two points in question.

**Ques.**—To light a mine with 200 lamps of 16 cp. each, what amount of mechanical energy would have to be available for conversion into electricity?

**Ans.**—The ordinary 16-cp. incandescent lamp, operated on a 110-volt circuit consumes, say 3.5 watts per cp. The total wattage required to operate a system of 200 such lamps is  $200 \times 16 \times 3.5 = 11,200$  watts, which is equivalent to  $11,200 \div 746 = 15$  hp. Now, allowing for an efficiency of 80 per cent. in this system, the mechanical energy required is  $15 \div 0.80 = \text{say } 20 \text{ b.hp.}$ , making no allowance for transmission in the mine.



# Coal and Coke News

## Washington, D. C.

The Interstate Commerce Commission has handed down a decision in the co-called Industrial Railways case which is likely to be of considerable interest and importance to coal producers, in two ways. Considerable coal is transported over these roads to industrial plants which are large consumers of fuel, while the effect of the decision on the general tariffs of the long haul roads is of importance to shippers of all classes of goods and especially to those shipping the heavier articles.

The case in question is that docketed as "In the matter of allowances to short lines of railroad serving industries" and is concerned with the lines of those carriers which have been owned as a rule by industrial concerns which needed direct connection with a trunk line. Some time ago, following the original report of the Commission in the Industrial Railways case, the trunk line carriers in official classification territory, withdrew from joint rate arrangements heretofore had with the industrial roads and also with substantially all other industrially owned lines in the territory which were not involved in that proceeding.

Altogether, more than 47 industrial roads became involved in the proceeding and the Interstate Commission set out to gather the facts regarding the history, operation and practices of each of the lines thus involved. Circulars were mailed to each carrier and the replies tabulated. The Commission sought to establish in each case whether the line affected was a bona fide common carrier, whether the service performed by it was a "plant service" or was public transportation, and whether a charge should be made for such service in addition to the line haul rate applicable to or from points on the rails of the trunk line at the junction.

With these questions there was also to be considered the larger economic question whether or not part of the money paid to the trunk line carriers for public transportation service is to be used to defray the expense of particular shippers in conveying their traffic to and from the terminals of the trunk line carriers.

### The Six Groups of Carriers

Pursuing its inquiry, the Commission finds that the carriers referred to may be divided into six groups, each of which is subject to somewhat different conditions of traffic, ownership, or control. In all, however, the Commission holds that the conditions which originally gave rise to the present system of industrial railways, with their special and independent rate structure, have altered, so that on the whole it is deemed wise to follow with them the course adopted in the Tap Line cases, by requiring that each line which becomes a party to a rate arrangement with a road shall file immediately upon the consummation thereof a full statement of the arrangement entered into, showing specifically the basis of rates to be applied from points on industrial lines and the basis of the allowances or divisions thereof granted under the agreement.

In general, justifying this finding, the Commission holds that:

1. The principles laid down in the original industrial railways decision some time ago do not apply to sundry of the lines with which joint arrangements have heretofore been cancelled by the long-haul lines.
2. Some of the industrial lines are distinguishable from those discussed in the Tap Line cases only in that the Tap Lines are not located within a territory from which rates are made under a large blanket of originating points.
3. Some of the industrial lines while maintaining the form of common carriers are in effect performing only private transportation.
4. Some of the industrial lines, like the Tap Lines, should have joint rate arrangements, but the basis of rates should be revised.
5. Some of the industrial lines have taken on the form of common carriers by means of leases of facilities of the trunk lines, and such arrangements are in some cases a device to defeat the law.
6. Some of the industrial lines are not common carriers in any sense.

In concluding its opinion requiring the publication of industrial railway tariffs and the filing of the divisions and arrangements thereof, the Commission says:

These cases (referring to certain which it has cited) illustrate the passing of the necessity for that provision of section 15 under which shippers may be compensated by the trunk lines for their facilities used in the handling of their own shipments. This legislative measure was enacted to give this Commission a means of eliminating certain unjust discriminations. The gradual elimination of discriminatory practices by other processes leaves this provision of the law to be used as a cloak for various payments which, but for it, would be looked upon as rebates. The Commission will look to the trunk lines to reform their tariffs and file with this Commission whatever arrangements they may make with the industrial lines here in question in the light of this report.

## PENNSYLVANIA

### Anthracite

**Plymouth**—Since the closing down of the Dobson No. 12 colliery through litigation several months ago, the mine has been flooded with water from adjoining workings, the level now being up close to the mouth of the shaft. Some of the water has leaked into the red-ash vein of the Gaylord colliery closing 30 places.

**Wilkes-Barre**—The Pennsylvania Coal Co. has been made defendant in a \$50,000 damage suit entered by Francisca Guinta, of Pittston, on behalf of herself and minor child. Her husband, while employed at No. 6 colliery, was killed by a premature explosion.

In a majority opinion rendered recently, Judges P. A. O'Boyle and John M. Garman fixed \$3000 per acre as a fair and equitable assessment on coal land. Judge H. A. Fuller in a dissenting and minority opinion fixed \$1920 as a fair assessment. The decision of the majority of judges sustains the action of the county authorities in fixing \$3000 per acre as the triennial assessment for 1907. It is anticipated that the case in question where these opinions were derived will be appealed to a higher court.

**Carbondale**—Fuller E. Layman recently started a suit in trespass against the Sacandage Coal Co. to recover \$5000 for damages caused to his house and lot by mine caves. In the statement accompanying the suit, Layman set forth that the company illegally removed coal from under his property causing a subsidence of the surface.

**Hazleton**—Because George Patrusky, a docking boss at the Eyans colliery, at Beaver Meadow, changed his boarding place from a private home to a saloon against the protest of John Bredbenner, the foreman, who feared Patrusky would subject himself to bribes in the shape of drinks from the men the 100 miners of the works recently struck.

**Harrisburg**—Until the Supreme Court shall decide upon the constitutionality of the act of 1913 relating to certificates to be given to mine foremen and assistants, no certificates will be issued, according to a decision recently reached by the Dauphin County Court. This court has upheld the act and its decision has been appealed to the Supreme Court. It now holds in effect that the appeal acts as a supersedeas and prevents operation of the law until a final decision is reached.

**Summit Hill**—For several years the Bloomingdale Coal Co. has been conducting prospecting operations on land in this vicinity, but it has now abandoned the work. This has been necessitated by the fact that during all this time it has not discovered any workable deposits of anthracite.

### Bituminous

**Johnstown**—Nicholas Losick was killed, John Dono lost his right eye and sustained severe injury to the lungs, and John Sowick, Michael Sabrick, J. E. Ellison, and John Daniels were badly injured by the accidental discharge of a quantity of dynamite at Elton on the evening of July 8. The men were engaged in sinking a shaft for the Berwind-White Coal Co.

Laborers engaged in excavating preparatory to the paving of Fern Place in this city have struck the "C" vein of coal, which lies unusually close to the surface at that point and half the material being taken out is burnable coal. The vein was struck less than 3 ft. below the surface and although mixed with a great deal of clay is declared fit for household purposes, "with a little cleaning."

**Brownsville**—Fifty-ovens of the Newtown plant of the H. C. Frick Coke Co. that have been idle for more than a year have been ordered fired up. Plans for the improvement and reopening of the Champion mine near Brownsville are under way. This mine has been idle for nearly two years and as a consequence contains much water in addition to many falls that have occurred since the suspension.

**Pittsburgh**—Judge John D. Shafer in the common pleas court of Allegheny county recently fixed the date for the sale of the Pittsburgh-Buffalo Coal Co. against which action was begun last August by the Union Trust Co., of Pittsburgh in a bill of equity. The date was set for July 15. The bill asked for the satisfaction of two mortgages, one for a \$2,000,000 bond issue which the trust company financed and the second asking indemnity for a loan to the company on the paper given it by the officers of the company. This latter obligation was placed by an attorney of the company at \$1,750,000 which makes the Union Trust Co.'s claim against the coal company approximately \$4,000,000. Other liabilities of the company are said to total several millions more. The holdings of the company consist of five separate mines. These are the Marlanna, the Hazel, the Frances, the Johnetta and the Bertha mines. John H. Jones is the president of the company and D. G. Jones is the general manager. The financial troubles of the company are said to have been hastened by the formation of the Four States Coal & Coke Co., an auxiliary concern, into which was put much of the revenue of the Pittsburgh-Buffalo Co.

**Otto**—The Pittsburgh Gas and Coke works at Otto, Westmoreland Co. which have been closed down for months will soon resume operations. The company has spent much money in making improvements. All the ovens have been relined while several other big changes have been made to the plant. Two new buildings are now under construction and a big force of workmen is engaged in getting the plant in readiness for a general resumption.

**Connellsville**—The production of Connellsville coke attained unusual activity during the week preceding July 4. Shipments reached 377,000 tons, while production was 371,000 tons. The merchant operators continue to fire some ovens and to increase their output, which ran 140,000 tons during the week in question. During the first half of the year the Connellsville coke production reached 7,300,000 tons, or at a rate less than 15,000,000 tons annually. The rate of production has been rapidly increasing, however, both in merchant and furnace ovens.

#### WEST VIRGINIA

**Grafton**—The coal and general freight trade through the northern half of West Virginia continues to hold up in a satisfactory manner and the railroads are busy. Railroad shops are working heavy forces of men to keep machinery in repair and to handle the traffic. Coal companies in this district have heavy coal orders and most of the mines are working at capacity.

**Bluefield**—It is said that the demand for coal is becoming greater day by day, and every factor is favorable to make July a record-breaking month, with even a greater production than June, which saw the largest month's business in the history of the Norfolk & Western R.R., except the labor supply. The output during the first few days of July was considerably short of the average daily record of June. The Fourth of July vacation was not lost sight of in connection with this alleged shortage in the output of the mines.

**Charleston**—Of the 30,000 Italians employed in the coal fields and lumber camps of West Virginia, fully 5000 are reservists in the army of their native country. Hundreds of these are now on their way to engage in the campaign against the Austro-Germans. The men who have left and are now leaving are what are known as "specialty men," listed on the army records as engineers, surveyors, electricians, linemen, automobilists, general machinists, etc. It is said that 100,000 Italian-Americans are answering the call of their mother country, but it is estimated that it will take nearly all summer to secure transportation facilities for all the men who have now responded. The departure of these laborers may, however, mean a considerable decrease in the output of the West Virginia coal mines.

#### ALABAMA

**Birmingham**—The first shipment of coal from the Birmingham district by water to Mobile has just been completed by the Pratt Consolidated Coal Co., the coal going through the recently completed lock 17 on the Warrior River. The shipment was of 1000 tons. Officials of the company state that the cargo of coal was delivered in Mobile at about half the cost of rail shipping. This company has just completed a new tippie and dock at Maxine where the barges are being

loaded. The Maxine mine is one mile from the river and the coal is hauled from the mine in dump cars which are run out on the tippie.

Six lives were lost in the coal mines of Alabama during June.

Examinations for first and second class mine foreman's certificate and fire boss certificate will be held in Birmingham July 26-29.

#### KENTUCKY

**Viper**—The Perry County Block Coal Co. organized here recently, advises that it will begin shipping coal Aug. 2, and will have an initial output of 500 tons daily. The plant is on the main line of the Lexington & Eastern R.R.

**Sturgis**—The West Kentucky Coal Co. was host recently to its employees, at its annual outing.

**Harlan**—The Big Four order being handled by the Harlan Coal Mining Co., with another contract, enables the company to keep one of its mines operating steadily six days a week. The other two, however, as is the case with most of the mines in the section, are working on part time.

#### OHIO

**Columbus**—The Ohio Mining Department was recently called upon to settle a labor dispute at a mine in eastern Ohio. The work of taking out the pillars and ribs was being done by quite a number of men who were said not to be practical miners and a complaint was made. It was ruled by the department that only practical miners should be used in the work, and these orders were promptly complied with.

According to the report of the Ohio Mining Department for the first six months of the year, there were 22 fatal accidents in the period as compared with 35 for the first six months of 1914. While mining operations during the past six months have been curtailed and necessarily the number of men employed is smaller, it is pointed out that during three months out of the first six months of 1914 practically all of the mines in the state were idle. One of the peculiarities of the report is the fact that four miners dropped dead in the mines from heart disease, during the first six months of 1915, which is extremely unusual.

**Bellaire**—Announcement has been made that the local mine of the A. J. Morgan Coal Co. will be shortly abandoned and the office of the company moved to Bannock where a tippie is being constructed, preparatory to opening a new mine at that place. The abandonment of the local mine will mean that about 100 coal miners will be compelled to secure employment elsewhere, or remove to the city of Bannock.

Employees of the Rail and River mines have been idle for the past few days, in order that new scales may be installed at the mines. According to the agreement between the miners and operators, all the mines are to have their scales placed at the mines no later than July 20, or in sixty days following the ratification of the recent wage scale.

#### ILLINOIS

**Belleville**—Loot taken from the office of the Tower Grove Coal Co., on Lebanon Ave., this city, was recovered when three boys were arrested recently. The office was entered a few nights ago and everything that appealed to the fancy of the boys was taken. The stolen articles were recovered where the boys had buried them.

L. Senior, of Victoria Coal Co., with offices at St. Louis and Belleville, operating the Branch mine on the Illinois Central R.R., has announced that the Royal mine, on the Louisville & Nashville, between Belleville and East St. Louis, will be reopened as soon as repairs are finished. A new tippie is being erected. The mine was operated by the Royal Mining Co., which failed two years ago, owing the miners considerable sums. Mr. Senior has paid the miners and nothing now stands in the way of resumption.

**Danville**—The Illinois State Mine Examining Board had a meeting here recently. Dates announced for other meetings are as follows: Eldorado, July 13; West Frankfort, July 14; Herrin, July 15; Murphysboro, July 20; Belleville, July 21; Staunton, July 22; Pana, July 23; Springfield, July 27-28.

**O'Fallon**—The Joseph Taylor Coal Co. of this place has obtained a writ of certiorari in the St. Clair County Circuit Court, calling for the records in the case of Albert Southern, heard before the Illinois Industrial Board. Southern was employed in the St. Ellen mine here. He broke a blood vessel and was allowed by the Industrial Board \$79.50 at the rate of \$6.15 a week. Later he made another application, on the ground that he was indefinitely incapacitated and was awarded 50 per cent. of his wages until further orders of the board. The company contends the 50 per cent. award is not valid because the claim had already been adjusted.



## FOREIGN NEWS

**London, Eng.**—Walter Runciman, president of the Board of Trade, announced in the House of Commons on July 13 that in view of the failure at agreement between the South Wales coal owners and their miners the government had decided to apply to the mining industry the Munitions of War Act. This act makes it an offense to participate in either strike or lockout unless the differences involved have been submitted to the Board of Trade, which body has referred the matter for settlement by one of the methods prescribed by the act. In this case the government takes the ground that the strike is prejudicial to the production, transportation and supply of munitions of war.

**Toronto, Canada**—D. A. Thomas, known as the Welsh coal king, has during the last two years spent a large amount of money in prospecting along the waterways to the north of Edmonton, Alta., and is convinced of the abundance of coal resources in that district. These coal fields are to be opened up by the construction of a railroad from Athabasca to Fort Vermilion, a distance of some 300 miles. An agreement to that effect has been signed by C. S. Law, representing Mr. Thomas, and Hon. A. G. Mackay, acting on behalf of the Athabasca & Fort Vermilion Railway Co., which holds a charter from the Alberta Legislature. It is officially stated that reconnaissance work on the route will be begun forthwith by a full engineering staff. It is expected that the road will be completed within two years.

## PERSONALS

John Frazier has been appointed mine manager at No. 3 mine of the Superior Coal Co., filling the vacancy caused by the resignation of John Day.

P. H. Shanahan, who has been assistant superintendent of the Superior Coal Co., at Gillespie, Ill., for several years, having come up from the position of machine runner, has been promoted to the position of superintendent.

When Deputy Mine Inspector Samuel McMahon, of West Virginia, returned home recently from his first trip of inspection he was presented with a safety razor and fountain pen as a token of appreciation from the employees of the LaBelle No. 4 mine.

Lawrence H. Underwood, for the past three years in charge of the byproduct coke plant of the Gary works of the United States Steel Corporation, has been recently appointed superintendent of the new byproduct coke plant now in course of construction for the Youngstown Sheet and Tube Co., at Struthers, Ohio.

P. J. Rogers, of Ensley, Ala., has been appointed by Governor Henderson as president of the Convict Bureau. Mr. Rogers is superintendent of the Pratt Mines Division of the Tennessee Coal Iron & R.R. Co., and was strongly endorsed for the position to which he has been appointed by his many friends in the mining circles of Alabama.

C. C. Rose, general manager of the Delaware & Hudson Coal Department, has been seriously ill at his home for some time. He has not been in good health for the last year or more having suffered much from rheumatism. He is at present in an exceedingly exhausted condition and is not gaining strength as fast as his friends might desire.

## OBITUARY

William H. Gorman, president of the Gorman Coke & Coal Co., the Cumberland Coal Co., and the Piedmont Mining Co., died recently at the Bedford Springs Hotel, at Bedford Springs, Penn. Mr. Gorman was also a director of the Citizens National Bank, the Maryland Casualty Co., and the Citizens National Bank, of Laurel, Md.

Colonel Jones T. Pierce, one of the pioneer coal operators of the Birmingham district, died recently in Bowling Green, Ky. Colonel Pierce was closely connected with the early development of the district and for years was a prominent citizen of the section. He centralized his activities in the Warrior coal field where he formed the old Pierce-Warrior Coal Co. Some 20 years ago he removed to Kentucky, where he acquired interest in coal mines.

## INDUSTRIAL NEWS

**Pittsburgh, Penn.**—The Pittsburgh Coal Co. has opened an agency at 46 Reconquista, Buenos Ayres, with C. Bulman as local manager. It has also acquired a depot at La Boca (Port of Buenos Ayres).

**Washington, D. C.**—The Department of Justice has announced that an appeal will be taken to the Supreme Court in the Reading coal trust case, which has been decided against the government at Philadelphia in the United States District Court for the eastern district of Pennsylvania.

**Dickson City, Penn.**—Becoming lost in the Johnson colliery, Lawrence Brady, a miner, 60 years old, was found after having almost succumbed to exhaustion and lack of food. He had gone into the mine to take out his tools, when his light went out and having no matches he wandered around in the dark, until his absence from home alarmed his family and a searching party was formed.

**Woodward, Ala.**—The Woodward Iron Co. has begun the erection of a benzol plant adjacent to its byproduct coke plant at Woodward. The plant will have a capacity of 3000 gal. This plant is built for the Woodward company and the Thomas A. Edison Co., has also just completed a benzol plant at Woodward. The Tennessee Coal & Iron Co. is nearing the completion of its 12,000 gallon benzol plant at Fairfield.

**Philadelphia, Penn.**—The Lehigh Valley R.R. Co. is using the tug "Wyoming," of its coal barge towing fleet, as the basis of experimenting with a coal saving device. The apparatus consists of a superheater placed over the boilers of the tug and it is confidently predicted that the mechanism will be the means of a fuel saving of over \$3000 on this one boat alone, in addition to which greater motive power is derived from the steam.

**Harrisburg, Penn.**—The Auditor General's office is sending out notices to 130 coal producing companies in the various anthracite districts requesting them to make a return of their June production in accordance with the new coal tax law enacted by the last legislature. This is an increase of 10 companies over those reporting under the law of 1913, as the present act has been drawn to include all companies operating coal bank washeries.

**Athens, Ohio**—With the view of relieving destitution among the miners and their families in the Hocking Valley where many mines have been closed down completely, Governor Willis, of Ohio has called upon the Ohio Highway Commission to have the contracts for road improvement in the vicinity of Athens, Nelsonville and Gloucester pushed. Considerable road improvement in that section is contemplated and it is believed that miners will seek employment at this work.

**Cincinnati, Ohio**—Two coal steamers were sunk in the local harbor on the Ohio River during the terrific rain-and-wind storm on the evening of July 7. The "Convoy," belonging to the Hatfield Coal Co., of Covington, Ky., capsized and sank, with a number of her crew, and the towboat "Fulton," belonging to the Monongahela River Consolidated Coal & Coke Co., used as a harbor boat here, was sunk when struck by an empty barge which had broken loose. Capt. Bradley Williams, of the "Fulton," was missing after the storm cleared away, and is believed to have been lost.

**Birmingham, Ala.**—The petition against the Louisville & Nashville R.R. and Southern Ry. for a rate of 50 cents per ton on steam coal for manufacturing purposes was denied, by the State Railroad Commission recently. The commission ordered the Louisville & Nashville to establish a rate of 60 cents per ton on coal from mines located on the Helena, Blocton, Colona, Belle Ellen and Acton branches to the Keystone Lime Works at Keystone and other lime kilns at Wilmay, Saginaw, Longview and Vernon. All petitions for increase of coal rates into Birmingham were denied by the Commission.

**Philadelphia, Penn.**—The Board of Commissioners of Navigation has compiled and published the export statistics of this port for the six months ending June 30. During that period there has been loaded over the piers into both foreign and coastwise bottoms 434,874 tons of bituminous coal as compared with 317,498 tons for the same period of 1914; and 24,959 tons of anthracite as against 20,574 tons in 1914. The increase of over 100,000 tons of bituminous is accounted for by the extended inquiries for coal from abroad since the beginning of the war, and an even greater increase is predicted for the last half of the year judged by the way the tonnage is going forward this month.

# Coal Trade Reviews

## General Review

**Anthracite being offered at heavy concessions. Large accumulations of nut coal. Export bituminous trade continues the predominating feature. Domestic market lifeless. Improved tone in the Middle West.**

Competition has become so keen in the anthracite market that even conservative old-line companies, handling the very best grades, are being forced to make concessions. There is a notable dearth of new business which will be even more acute over the last half of the month unless the retail movement increases. Although mining operations are heavily restricted, abnormal supplies are accumulating in all directions particularly on chestnut coal, the situation on which is rapidly becoming acute. Poor collections among the retailers continue the rule and this is being reflected back to the operators; particular significance is attached to this feature by the failure of two weak members of the trade and there is some anxiety among the large operating companies regarding long deferred payments.

An exceptionally heavy export movement from the Virginia piers is the predominating feature of interest in the bituminous trade. The demand has been so insistent that a few agencies have even become short of supplies and are urgently crowding the railroads for rush shipments. This is in great contrast with recent conditions at that point as well as the current situation in the other markets.

Stocks at Tidewater are still large and occasional cargoes can usually be picked up at low prices without much difficulty. There is no activity in any line except industries working on war orders and shipments are confined almost entirely to contracts. There is, however, a distinct feeling that the coastwise market is gradually toning up and conservative interests are a trifle more cautious over future commitments though there has been no significant price change of any kind.

So little spot business is being done in the Pittsburgh district that prices are not well defined though they are probably even lower if anything. Operations are at 50% capacity and there is considerable coal accumulating that is difficult to move. The Lake shipments have proved particularly disappointing and the movement for the current month will probably be even less than June.

An increased movement of West Virginia coal in the Lake trade has encouraged the Ohio operators somewhat, even though they have not benefited materially. Otherwise the market situation is discouraging. The manufacturing demand continues to lag appreciably behind normal, and the demand is limited in all directions. Some stocking for domestic purposes is being done, and the threshing trade is absorbing a small tonnage, but all branches are unusually quiet.

There is a greater improvement in the Middle West where the business for the current month shows some increase over June. General quietness still prevails, and there are even a few weak spots, but there is a growing conviction that the demand will be on the increase from now on, in spite of the waiting attitude among the buyers. A significant development has been the resumption of the full-time operations at the Gary Steel Mills for the first time since 1912. Other features of a constructive nature are the restrictive programs regarding mine operations, anticipation of greater cooperation among the operators, and the expectations of a heavy rush for coal the coming fall.

**A Year Ago**—Anthracite trade has touched the low point of the year with buying somewhat less than customary. Eastern bituminous market under heavy pressure. Curtailment of operations and tendency to hold tonnage closely are the most encouraging features. Middle Western trade developing a steadily accumulative strength.

## BUSINESS OPINIONS

**American Wool and Cotton Reporter**—More inquiry has developed from the woolen mills during the week than has been in evidence for some time. The light weight goods season is beginning and duplicate orders have been made on heavy weight goods. Growers are still maintaining firm

prices, as well as the dealers. The trend is still decidedly upward.

**Boston News Bureau**—The situation continues to show that the influences bearing upon it are not generally known or understood. The conditions operating change quickly and a man is at loss to shape his conclusions. The astonishing fact is that the loans made by the allies since the war have reached over ten billion dollars, and Germany and her allies have borrowed half as much, making total war loans to date about sixteen billion dollars. It is very possible that the enormous cost of the war may force the question of peace earlier than the reports from the field indicate. Some good people are banking on this idea.

**Iron and Steel**—The rapid and continued strength and increase in activity in the steel trade is surprising. The United States Steel Corporation has purchased 55,000 tons of billets and with 80% of its blast furnace capacity in operation is not making any especial headway on accumulated orders. Its export business alone amounts to 10,000 tons a day. Structural steel work is much more active. The fabrication shops of the country are operating to 80% of capacity compared with 30% at this time last year. An order for 200,000 tons of rail from the Russian Government is under negotiation by two of the largest independent companies; French interests are also endeavoring to buy 20,000 tons of rails. Domestic business is more active. The Burlington has purchased 2000 freight cars.

**Government Crop Report**—The Government's condition estimate of 93.3% on the spring wheat crop is the highest for July since 1904. The estimate of 295,000,000 bu. spring wheat for the country as a whole gives the three Northwestern States 227,000,000 bu. or 19,000,000 bu. over last month's estimate, and compares with 207,000,000 bu. estimated a year ago. The corn crop indication of 2,814,000,000 bu. is the third largest on record, but compares with 2,916,000,000 bu. a year ago. Oats promises to be the largest crop on record, and, unless seriously damaged, the final returns are estimated to exceed the record yield of 1,418,000,000 bu., the present estimate being only 19,000,000 bu. under that figure. The trade considers the report as bearish on all grains. The carry-over is 55,000,000 bu. of wheat, against 76,000,000 bu. last year.

**Marshall Field & Co.**—Wholesale shipments of dry goods have been about normal. Collections have been exceedingly good, as compared with those of the same week a year ago. Buyers are beginning to arrive in the market from the far Western States to look at fall lines.

**Bradstreet's**—Irregularity in distributive trade contrasts with enlarging activity in industrial lines, continued absorption of idle workmen, heavy war orders, increased bank clearings, and a generally good crop outlook, notwithstanding rainy weather at harvest in parts of the winter wheat belt. Except in sections where seasonably dry weather has prevailed, selling by final purveyors has been checked by low temperatures or too much rain.

**Dun's**—Uniform progress is not to be expected at this period, when inventorying and the advance of the vacation season tend to produce quietness in various mercantile lines. It is significant of the economic changes resulting from the war, however, that industrial conditions do not reflect the usual mid-year lull, and all indications point to fully sustained activity throughout the summer months.

## ATLANTIC SEABOARD

### BOSTON

**Better trend in Pocahontas and New River. Excessive water power restricts coal consumption. Delivered prices still low in spite of diminished receipts. Georges Creek in demand off-shore. Certain Pennsylvania grades in strong position. Anthracite inquiry sags off.**

**Bituminous**—The demand off-shore is moderately active and so long as that continues the Pocahontas and New River shippers will be relieved of any special pressure to move coal. Concessions in price are still confined to a few factors and there is now a distinct feeling that the coastwise market is gradually toning up. So far there has been nothing signifi-



capt in the way of price movement, but the agencies are beginning to be cautious about giving options and there is a more conservative trend with regard to futures. Not much improvement can be looked for in this territory so far as demand is concerned for most of the contracts have now been closed, but with the export trade in good shape it is probable that prices f.o.b. will strengthen as fall approaches.

The extra inquiry that was expected on account of deficient water-power will not materialize because of a heavy fall that has more than made up for the dry season earlier. Delivered prices show no change. Distributors inland have large stocks and still seek to place current coal at minimum prices. Arrivals have been rather less than normal however, and there is very little free coal afloat.

Only small tonnages of Georges Creek are available for this market. The bulk of this grade is still being loaded for export, and barges and steamers for New England ports are obliged to wait until foreign bottoms have been given clearance. The chief shippers stand in favorable relation to new business that develops from the Mediterranean.

One of the features of the present market is the strong position of some of the Pennsylvania grades. Several of these have ample business in hand until the fall demand starts in. The choice Cambrias and Somersets have not only held their tonnage in this territory but in several instances they have made notable inroads, and this notwithstanding the low prices named by Hampton Roads shippers. More than a few of the Pennsylvania grades have now established themselves in quarters where formerly nothing but Pocahontas and New River would be considered.

**Water Freights** continue about as last reported; 80c. on barges, 2500 tons upward, is the prevailing rate, Hampton Roads to Boston, with only a light demand; 40c. is still the rate from New York to Providence and Fall River. The rate on hatch-loads of bituminous in anthracite carrying transportation, Philadelphia to Boston, continues at 80c.

**Anthracite**—While orders are still in fair supply with most of the shipping companies, there is beginning to be a dearth of new business. The latter part of July is likely to see the demand very light and to continue so until retail stocks begin to move faster to the consumer. Concessions are made more freely even by conservative shippers, but such inducements are no more than as usual at this season.

Current quotations on bituminous are about as follows:

	Clearfields	Cambrias Somersets	Georges Creek	Pocahontas New River
Mines*	\$0.85@1.40	\$1.15@1.60	\$1.67@1.77	
Philadelphia*	2.10@2.65	2.40@2.85	2.92@3.02	
New York*	2.40@2.95	2.70@3.15	3.22@3.32	
Baltimore*			2.85@2.95	
Hampton Roads*				\$2.70@2.80
Boston†				3.55@3.68
Providence†				3.45@3.68

\* F.o.b.

† On cars.

#### BALTIMORE

**Export shipments slowing down. War business marks only real industrial activity. Prices continue low.**

From present prospects the July exports will fall off to about the 100,000-ton mark, which is regarded by many shippers here as nearer the true basis for the future. Last week the cargo coal loaded totaled 56,192 tons, although of course there was one holiday during the period. Outside of this there is little real industrial activity except on war orders. Machine shops here are busy and khaki and cotton duck plants are working on large orders. Elsewhere there is little business enthusiasm, and not much prosperity talk is heard.

The situation is well reflected in the coal trade, despite the big comparative movement of coal on export. Prices continue weak and producers find it difficult to keep enough of their product moving to prevent congestion at the mines. High-grade coals of West Virginia, Maryland and Pennsylvania are selling at from \$1.20 to \$1.40. Low-grade West Virginia and Maryland coals are offering down to 75 and 80c. to the trade at the mines, with ordinary Pennsylvania coals at 90 to 95c. Mines that are covered at all well with contracts are not letting fuel go at all on the present spot prices.

#### NEW YORK

**Export demand increasing. Local market continues quiet. Spot business dull. Contract coals moving well. Anthracite situation unchanged. Inquiry from abroad for hard coal. Small steam sizes show improvement.**

**Bituminous**—There is very little demand for spot coal and prices are unchanged. Interest is centered on the export demand which seems to be increasing. Contract holders are taking their full quota and many large users are picking up odd cargoes to replenish their stock piles.

The suspension of mining over last week's holiday and a few days idleness following, affected production materially.

While the docks are filled there is not so much coal on hand as to affect prices. Spot orders are scarce.

Operations continue on about half-time basis and shippers do not look for much new business until fall. While stray cargoes of fair coals have been picked up at low prices choice grades have been held at good figures.

The brightest feature of the situation continues to be the export trade. Much coal is being shipped to Halifax, it being reported that many schooners have left this port for that vicinity. Exporters report having received additional inquiries from France, Italy and Spain. While considerable business is being closed, shippers complain of the excessive freight rates. The demand for bunker coals is also on the increase.

Current quotations are on the following basis:

	South Amboy	Port Reading	St. George	Mine Price
Georges Creek Big Vein.	\$3.30@3.40	\$3.30@3.40	\$3.30@3.40	\$1.75@1.85
Georges Creek Tyson....	2.90@3.00	2.90@3.00		1.35@1.45
Clearfield:				
Medium.....	2.65@2.80	2.55@2.65		1.10@1.25
Ordinary.....	2.55@2.60	2.55@2.60		1.00@1.10
Broad Top Mountain				1.10@1.45
Cambria County:				
South Forks.....	2.90@3.05			1.35@1.50
Nanty Glo.....	2.75@2.80			1.20@1.25
Barnesboro.....	2.65@2.70			1.10@1.15
Somerset County:				
Quemahoning.....		2.70@2.85	2.70@2.85	1.20@1.30
Medium.....	2.65@2.70	2.60@2.65	2.60@2.65	1.10@1.15
Latrobe.....	2.45@2.55			.90@1.00
Greensburg.....	2.75@2.80			1.10@1.15
Westmoreland.....	2.95@3.20			1.15@1.40
West Virginia Fairmont }		2.60@2.70	2.60@2.70	.80@.90
Fairmont mine-run.....		2.50@2.60	2.50@2.60	.70@.80
Steam.....		2.45@2.50	2.45@2.50	.90@.95
Western Maryland.....		2.35@2.40	2.35@2.40	.80@.85

**Anthracite**—The first half of July has shown no material improvement in the anthracite situation. Notwithstanding the continued restriction in mining there seems to be as much, if not more, of the prepared coals on hand as during the past month. There is a slight improvement in the small steam size situation due to the curtailing of production. The demand has not increased. Some of the companies are storing considerable of the smaller buckwheat coals. No improvement in operations is looked for, it being expected the mines will continue to work on about half-time schedule during this and next month. Considerable optimism is expressed as to the outlook for September.

Some of the larger shippers have received inquiries with regard to anthracite for export, a few of the inquiries having come, according to report, from England. No deals are reported as being closed.

Chestnut coal continues in abundance, much of it being in bottoms. Considerable stove and egg is in boats waiting for buyers. As a result bottoms are scarce for buyers who desire either a mixed or small cargo.

Pea coal continues about the same as last week. Inquiry for No. 1 buckwheat of the better grades has been good the prices quoted running at about \$2.20. The same as regards inquiry may be said with regard to Nos. 2 and 3 buckwheat. The cheaper coals can be obtained at much lower prices.

Current quotations are about as follows:

	Lower Ports		Upper Ports	
	Circular	Individual	Circular	Individual
Broken.....	\$4.85		\$4.90	
Egg.....	5.10	\$4.80	5.15	\$4.85
Stove.....	5.10	4.80	5.15	4.85
Chestnut.....	5.35	5.00	5.40	5.05
Pea.....	3.35@3.50	2.70@2.95	3.40@3.55	2.75@3.00
Buckwheat.....	2.50@2.75	2.05@2.30	2.55@2.80	2.10@2.35
Rice.....	2.00@2.25	1.70@1.85	2.05@2.30	1.75@1.90
Barley.....	1.75@2.00	1.45@1.70	1.80@2.05	1.50@1.75

#### PHILADELPHIA

**Anthracite dull, with collections slow. Chestnut size continues a big problem. Bituminous trade inactive, although water shipments continue in large volume.**

**Anthracite**—The strenuous efforts of the salesmen to sell coal constituted the only sign of activity in the market the past week. The dealers have no orders to give as may be imagined from the very few coal teams seen on the streets.

Prices continue well off circular on what little coal is being sold and reports are current of low prices being protected for future delivery on all sizes. One large company, long noted for the quality of its product and strict adherence to the circular, is known to have accepted orders at June prices on the last day of the month for protection over a long period.

Chestnut coal is continuing to pile up and it is absolutely impossible to move any appreciable quantity of it. One company has made arrangements to dump its large surplus at the Port Richmond piers and pay the storage charges until fall, feeling that this will be more profitable than sacrificing the coal at 40c. to 50c. per ton from the circular. There has been

no improvement in the price of pea coal, the quotations running from \$1.60 to \$2, but the market is practically glutted and very little effort is being made by the companies to push it for this reason.

The long shut down over the Fourth of July has enabled a number of the individual shippers to release a lot of coal that had been accumulating demurrage. Despite the fact that this market is practically unable to absorb all the coal that is coming from the mines there are reports of new operations starting and which will market their product here. The Lawrence colliery is already in operation, producing 1800 tons a day and the East Bear Ridge colliery expects to start up early in August with a possible output of 1000 tons daily.

The circular prices are as follows:

	City	Tide		City	Tide
Broken.....	\$3.20	\$4.45	Pea.....	\$2.50	\$3.25
Egg.....	3.45	4.70	Buckwheat.....	1.25	2.25
Stove.....	3.70	4.70	Rice.....	.85	1.75
Chestnut.....	3.85	4.95	Barley.....	.50	1.50

**Bituminous**—The expected improvement has not as yet made itself evident, although hopes continue high, despite the fact that the market is practically at a standstill. Some shippers even complain that conditions are worse than last week. However, the ocean tonnage continues to hold up and good shipments are going to South American and European countries, particularly France, Italy and Spain. There is a fair vessel tonnage available, but owners are becoming more firm in rates, and it is reported that quite a few sailing vessels have signed up for long voyages at good figures.

Prices ruling are about as follows:

Georges Creek Big Vein..	\$1.65@1.75	Fairmont gas, mine-run..	\$1.15@1.25
South Fork Miller Vein..	1.50@1.60	Fairmont gas, slack.....	.65@.75
Clearfield (ordinary).....	1.00@1.20	Fairmont lump ordinary..	.85@.95
Somerset (ordinary).....	1.00@1.15	Fairmont mine-run.....	.75@.80
West Va. Freeport.....	.85@.95	Fairmont slack.....	.45@.55

#### VESSEL CLEARANCES

The following vessels have cleared from Norfolk and Newport News, July 2 to 9, inclusive:

Norfolk			Newport News		
Vessel	Destination	Tons	Vessel	Destination	Tons
Kayma	Rio de Janeiro	3734	Hercules	Genoa	3550
Trente	Genoa	4900	Kanaris	Spezia	5300
Maria C.	Porto Ferrajo	4434	Westmount	Santiago de	
Selene	Italian <sup>2</sup>	5200		Cuba	2650
Nor. Mimer	Cienfuegos	1516	E. F. Bartram	Rio de Janeiro	1625
Brina Pendleton	Lisbon	1198	Mongibello	Spezia	5000
Coniston Water	Civita Vecchia	5218	Reynolds		4000
Ithaki	Catania	5434	A. H. Babcock	Rio de Janeiro	2050
Galveston <sup>1</sup>	Kingston	1585	A. W. Snow	Rio de Janeiro	1000
Luigino Accame	Genoa	4314	Torridge	Rio de Janeiro	7200
Battin			Haxby		4600
Accame	Torre <sup>2</sup>	5197	Knud II	St. Lucia	2731
Sowwell	Messina	5670	Ferndene	Italian port	5700
Benpark	Genoa	6219	Note—Steamers are indicated by		
Stromboli	Buenos Aires	7119	bold face type, others being barks and		
Tabor	Cristobal	5500	schooners.		

The following schooners cleared from New York Harbor during the month of June:

Vessel	Destination	Tons	Vessel	Destination	Tons
Jessie Ashley	St. Andrews	222	Flo Mader	Mahone Bay	193
F. E. Melanson	Church Point	214	Wm. D. Marvel	St. John	625
Elizabeth			E. M. Brown	Campbellton	597
Gilbert	Port au Prince	710	W. H. Davenport	Fredericton	342
Elsie A. Rayles	St. John	331	Alcara	Halifax	199
J. A. Beckerman	Canso	589	Seth, Jr.	Halifax	422
F. C. Pendleton	St. John	638	M. V. B. Chase	St. John	735
Elma	Halifax	475	W. L. Elkins	Fredericton	341
Maria Cobb	Summerside	604	S. B. Hafford	Halifax	601
C. P. Harris	Halifax	591	Carrie E. Look	Halifax	780
Minnie Slawson	St. John	575	Belliveau	New Carlisle	397
Lavalata	Shelburne	321	Arthur M.		
A. J. Sterling	Vernon River	290	Gibson	Campbellton	515
St. Bernard	Canning	215	Seguin	St. John	640
S. E. Ludlow	Dorchester	328	H. H. Chamber-		
Percy C.	Bridgewater	212	lain	Fredericton	359
Isaiah K. Stetson	Charlottetown	475	Lucille	Annapolis	300
Glyndon	Halifax	180	Scotia Queen	Bridgewater	219
Palmetto	Clarke Harbor	190	American Team	Halifax	464
Nepos	Guanoco	500	Crescent	Halifax	686

#### HAMPTON ROADS

Week's dumpings show up well both in coastwise and export. Indications are July movement will surpass June.

The dumpings over the piers at Hampton Roads for the week have been very good both as regards coastwise and export movement. Of the latter the largest percentage of the coal has been for the Italian ports. The coastwise shipments have, with few exceptions, all gone to the New England ports.

The demand for coal for export continues heavy and prices are firm. The demand for prompt movement has been such during the week that it has been almost impossible to take care of vessel tonnage as fast as it arrived in port. In a number of cases shippers are short of coal and are urging the railroads to rush shipments. There are very few shippers at Tidewater who have any great excess of coal on hand;

such free coal is, in most cases, either nut and slack or high volatile. Some of the shippers have a fair amount of coal on hand but it is for contracted tonnage about due.

**Railroad Tonnages**—Dumpings over the local piers for the past several weeks compare as follows:

Railroad	June 12	June 19	Week Ending June 26	July 3	July 10
Norfolk & Western....	197,533	207,824	213,279	211,017	174,822
Chesapeake & Ohio....	89,447	71,511	79,870	83,678	76,397
Virginian.....	34,975	51,644	87,840	58,455	57,467
Totals.....	321,955	330,979	380,989	291,828	308,686

#### OCEAN CHARTERS

The following charters have been reported from various sources during the past week:

PHILADELPHIA					
Vessel	Nationality	To	Tons	Rate	
Harlem <sup>1</sup>	British	Italy	2995	\$9.72	
Moldegaard		Havana	1788		
Farnand	Norwegian	Vita Cuba	861		
Fanny C. Bowen		Calais	892	1.35	
Sommelsdyk	Dutch	Rio Janeiro	4030		
Carrie A. Lane		Porto Rico	703		
King Josiah	British	Halifax	147	2.00	
Lucia Porter		St. John, N. B.	285		
Gedding Court	British	Spanish Port	2495		
Ardgaroch		Marseilles	3160		
St. Andre	French	St. Nazarre	3631		
Storford	Norwegian	Havana	2256		
..... <sup>2</sup>		Barcelona	7200	8.88	
Strahtavon	British	Barcelona	2830		
Clumleigh	British	Barcelona			
Lonsdale	British	United Kingdom	2895	4.08	
Franktor	British	United Kingdom	3059	4.08	
.....	British	United Kingdom	7300	3.30	
Emily L. White		Bathurst			

<sup>1</sup>Three trips beginning July. <sup>2</sup>Bilbao or Cadiz.

#### BALTIMORE

Teresa Accame	Italian	Italy	3026	
Harmattan	British	Italy	3046	
Holtje	British	Italy	2714	
Belgier	British	Marseilles	2881	
Erliner	British	Marseilles	2820	
Linda Fell	British	Alexandria	1924	
Camilla <sup>1</sup>		Banes	1530	
Oosterdyk	Dutch	Italy		8.88
Campiero <sup>2</sup>	Brazilian	Sicily	1605	10.08
Maasdiik	Dutch	La Plata		8.28
Bruckhansen	Dutch	Tela, Honduras		
Alf	Danish	Bocas del 'oro		
C. N. Simmons	American	Venezuela		
Claveresk	British	Felton, Cuba		
Chaparra	Cuban	Havana		
Urd	Norwegian	Stockholm	1968	
Maasdiik <sup>3</sup>	Dutch	Buenos Aires or		
		La Plata	2935	8.28
Piemonte	Italian	Italy	3512	
Enrichetta	Italian	Italy	3088	
Caterina Accame	Italian	Italy	2504	
Eliofoio	Italian	Italy	2295	
Colomba	Italian	Italy	2238	
Gregorios Livier-				
atos <sup>4</sup>	Greek	Italy	2139	9.36
Dionysios Stat-				
hatos <sup>4</sup>	Greek	Barcelona	2296	8.64
Zamora	Swedish		1959	

<sup>1</sup>And Preston. <sup>2</sup>Italy or Sicily. <sup>3</sup>Or Virginia. <sup>4</sup>Or Virginia.

#### VIRGINIA (INCLUDING HAMPTON ROADS)

Strathspey <sup>1</sup>	British	Italy	2852	9.72
Strathavon <sup>1</sup>	British	Italy	2830	9.27
Tilverton <sup>1</sup>	British	Italy	2453	9.27
E. Starr Jones		Pernambuco	787	7.75
Magnus Mansan		Pernambuco	1526	7.50
E. Starr Jones		Pernambuco	787	7.50
M. D. Cressey		Bahia	1884	
Mariteres	Spanish	Casablanca	1943	9.60
Stormount	British	Havana	1231	
Clara Davis		Brazil Port	544	
Wm. E. Litchfield		Puerto Plata	472	3.50
Dorington Court	British	Italy	3019	9.84
Eleni Stathatos	Greek	Italy	1871	9.12
Petritsis		Italy	2352	9.60
Gregorios Livier-				
atos <sup>2</sup>	Greek	Italy	2139	

<sup>1</sup>Three trips beginning July. <sup>2</sup>Or Baltimore.

#### ATLANTIC RANGE

..... <sup>1</sup>	American	Pacific Coast	5500 <sup>2</sup>	5.25
..... <sup>1</sup>	American	Pacific Coast	5500 <sup>2</sup>	5.25
Oosterdiik <sup>1</sup>	Dutch	Italy	5226	8.88

<sup>1</sup>Guarantee (no vessel named yet). <sup>2</sup>To 8000 tons.

#### OCEAN FREIGHTS

A number of steamers have been chartered to take coals to South American, Mediterranean and West Indian ports, and recent charters to Lower Plate ports were at \$8.28, although it was claimed that others were offering \$8.40 at the same time for boats of similar size, and in similar position. Four large British steamers are reported as having been chartered for three trips each, for coals to the West Coast of Italy, at \$9.72, but we think this report is incorrect as we had the same boats proposed to us at \$9.60 for three trips. Single charters are at considerably less than this rate, our last fix-tures being at \$8.64@8.88 to West Italy.



The freight market is quotable on the following basis:

To	Rate	To	Rate
Havana.....	\$2 00@2.25	Bermuda.....	\$3 00
Cardenas or Sagua.....	2 75	Vera Cruz.....	3.50@3.75
Cienfuegos.....	2 75@3.00	Tampico.....	3.50@3.75
Port au Spain, Trinidad.	3 50	Rio.....	8.40@8.64
St. Lucia.....	3 50	Santos*.....	8 64
St. Thomas.....	3.00@3.25	Montevideo.....	8 34
Barbados.....	3 50	Buenos Aires or La Plata	8 40
Kingston.....	2 75@3.00	Rosario.....	8 76
Curacao.....	3.25@3.50	West Coast of Italy.....	8.64@8.88
Santiago.....	2.50@3.00	Barcelona**.....	8 16
Guantanamo.....	2.50@3.00	Valparaiso or Callao.....	6.25@6.50
Demerara.....	4 25	Marseilles.....	8 40

Note—Rates noted in bold face type are only approximate.

\*Consignees paying dockage dues. \*\*Spanish dues for account.

W. W. Battie & Co.'s Coal Trade Freight Report.

Note—Charters for Italy, France and Spain read: "Lay days to commence on steamer's arrival at or off port of discharge. 24c. per net register ton per day demurrage."

## LAKE MARKET

### PITTSBURGH

Market conditions hardly as favorable. Lake movement apparently decreasing. Prices unsteady but unchanged. Operations barely over 50% of capacity and there are little indications of any immediate improvement.

The holiday did not sensibly diminish the amount of coal available. Many of the mines, probably the majority, are operating only two to four days a week, so that the holiday did not reduce their week's production at all. Lake shipments have shown no improvement, and may be lighter in July than they were in June. There can be no lack of vessel room, as the ore movement down the Lakes in June exceeded that of a year ago by half a million tons, and July is expected to show a still larger gain.

There is continued call for export coal, and while the Pittsburgh district operators have been unable to take any important tonnage, some of the Connellsville operators have built up a steady trade, which is increasing and may soon exceed 10,000 tons a week. Contracts for mine-run to Apr. 1 are occasionally booked at close to \$1 a ton, while on ¾-in. \$1.15 is sometimes shaded. So little contract business is being done that prices are not well defined. The ordinary market for free coal is about as follows, slack not usually bringing over 45c., while Youghiogheny gas slack, not being in very liberal supply, is fairly steady at 50c.: Slack, 45@50c.; nut and slack, 90@95c.; nut, 95c.@\$1; mine-run, \$1@1.05; ¾-in., \$1.10@1.15; 1¼-in., \$1.20@1.25, per net ton at mine, Pittsburgh district. Mines are not operating at much over 50% of capacity.

### BUFFALO

Dull week due partially to the holiday. Slack a very poor seller. Bad state of Canada trade. Anthracite as dull as ever. Mines running at a slow rate.

**Bituminous**—The demand is light and will continue so for awhile, though there are still members of the trade who state that orders are increasing. It is hard for anyone to account for the difference between this summer and that of two years ago, especially as there is so much money in the country and the export balance is so heavily in our favor.

The demand for slack is particularly light and there is considerable on track that cannot be sold. The Canadian trade is far from satisfactory; not only is it very dull, but there is every indication that it is going to remain so for awhile. Shippers estimate that not more than half the usual amount of bituminous is going over. It is figured that the extra duty and the decline in the price of Canadian coal, which is coming further west from Nova Scotia, has placed local shippers at a disadvantage of 30c. The shippers who made the prices in the spring do not intimate that there is any new basis for it, which is \$2.70 for best Pittsburgh lump, \$2.55 for three-quarter, \$2.45 for mine-run and \$2.25 for slack, with slack selling often at badly cut prices. Allegheny Valley coal remains at 25c. below Pittsburgh.

**Anthracite**—There is little improvement in the trade; mid-summer sales are always light and they are even lighter now than the average. There appears to be a rule on the part of all sorts of consumers to buy nothing that is not needed at once. There is a falling off in Lake coal shipments for the week, the amount being only 97,725 tons, but one of the trestles has been idle part of the week to make changes in its approaches, so that may be one reason for the reduction. The movement of holiday week, however, is never up to the average.

### CLEVELAND

Michigan buyers take large tonnage of No. 8 slack giving market firmer tone. Coarse coal goes begging.

Michigan buyers have taken between 500 and 1000 cars of No. 8 slack the past week at 55c. at the mines and the market is firm at that figure. Fairmount slack usually goes to the trade taking this coal. Youghiogheny and Fairmount are both up 10c. a ton. Lump coal is selling on the spot market at five to fifteen cents below quotations. There is very little demand for coarse grades and buyers are getting all they want at their own price.

The Lake trade is extremely dull. Ore shippers operating boats are trading ore cargoes for coal cargoes, ton for ton. Coal cargoes are usually traded for ore cargoes on the basis of two or three cargoes of coal for one of ore. The ore traffic is rapidly improving and shippers are independent so far as ore business for their ships is concerned.

Quotations for shipment are as follows:

	Pocahontas	Youghiogheny	Bergholz	Fairmount	Ohio No. 8
Lump.....	\$3.45				
Lump, 1 in.....		\$2.15	\$1.90	\$1.85@1.90	\$1.85@1.90
Egg.....	3.45				
Mine run.....	2.65	2.05@2.10	1.80	1.80	1.75@1.85
Slack.....		1.55	1.45	1.50	1.45

### COLUMBUS

Trade continues rather quiet. Stocking is being done in larger volume. The small sizes are strong.

The trade has been quiet in every department. Demand for steam sizes has been limited and the same is true of the Lake trade. Stocking of domestic fuel is attracting more attention but on the whole the demand from that source is not as strong as was expected. Rural dealers are buying better to take care of the threshing trade. The tone of the market is not very good and future prospects are not bright.

In the steam trade, buying off the open market appears to be the rule. Contracts have mostly been signed up but in some cases the consumer is buying at cheap prices outside of contracts. Steam consumption is not very large and manufacturing is at a low point. The demand for railroad purposes is not increasing to any extent. On the whole the steam business is dead in most localities.

Lake trade is increasing slightly, but the larger percentage of the increase comes from West Virginia coal. Considerable tonnage is being shipped from eastern Ohio to the Northwest. From the Hocking Valley the tonnage going to the lakes is not large. Docks in the Upper Lake ports are still congested.

Retail trade is rather quiet although Pocahontas and West Virginia splints are in fair demand. White Ash and smokeless are also being bought for stocking. Hocking lump is being stocked only to a limited extent. Buying for school purposes is now attracting the attention of retailers and a considerable tonnage will be sold during the coming month. Retail prices are well maintained in Columbus, despite the business depression.

Prices in the Ohio fields are:

	Hocking	Pomeroy	Kanawha	Eastern Ohio
Rescreened lump.....	\$1.45	\$1.50		
Inch and a quarter.....	1.35	1.35	\$1.30	
Three-quarter inch.....	1.25	1.30	1.25	\$1.20
Nut.....	1.15	1.25	1.15	
Mine-run.....	1.05	1.10	1.05	1.00
Nut, pea and slack.....	.70	.75	.65	.65
Coarse slack.....	.60	.70	.55	.55

Mines have been working at about the following percentage of full capacity:

District	June 19	June 26	July 3	July 10	District	June 19	June 26	July 3	July 10
Hocking....	25	25	25	20	Cambridge.	30	30	20	25
Jackson....	15	20	25	15	Masillon...	35	30	15	25
Pomeroy...	50	45	30	45	Eastern O..	45	50	40	60
Crooksville.	30	25	55	30					
					Average..	33	32	30	31

### TOLEDO

West Virginia coal still the best feature of the Toledo markets. Hopes of a more favorable rate adjustment to the Lakes.

There seems to be a little more life to the market here than for weeks past. The Lake movement is showing some improvement but is not what it should be for this season of the year. Considerable Lake coal is arriving but most of it is from West Virginia.

Local dealers express the opinion that freight rates may soon be adjusted to a more favorable basis for the Ohio mines. The Supreme Court of Ohio in a decision handed down last week confirmed the right of the State Public Utilities Commission to lower the rate on coal shipments from Nelsonville to Toledo from \$1 to 85c., the Commission having made that order about five years ago on complaint by the New York Coal Co., of Columbus.

Pocahontas coal has stiffened a trifle in price and there is some demand. Hocking and all Ohio grades are extremely slow. Kentucky coal is showing some improvement and West Virginia is fairly active. Steam coal is slow in demand and dealers are holding back on stocking orders. Prices are not held very close to the list.

#### CINCINNATI

**Business quiet although the feeling is better than for some time. Indications are that the worst is over.**

The demand is almost wholly lacking. The beginning of the end of the depression seems to be at hand, although as yet it is not manifest in the shape of any actual business. The trade feels that price concessions have reached the maximum, and that even the most reckless will soon realize the futility of mortgaging the future on the basis of the present dullness.

#### LOUISVILLE

**Retail situation slightly better but prices fluctuate over wide range. C. & O. operators invade Kentucky markets.**

The retail situation is improving slightly but there is little if any change in the industrial demand. Chesapeake & Ohio operators have been able to invade the Louisville market and take a contract which heretofore had been considered the property of the eastern Kentucky companies. This is for 40,000 tons of long flame West Virginia coal for the Standard Sanitary Manufacturing Co.'s Louisville plant, to be used in the company's enameling kilns. The West Virginia shippers get a rate 5c. lower than the eastern Kentucky, and it is stated that the price was sharply cut on the coal itself. It is intimated that the Kentucky operators may lodge a complaint involving the rate.

### COKE

#### CONNELLSVILLE

**Spot furnace coke up and down again. Continued light demand for merchant coke with steadily increasing production and consumption by the steel interests.**

The stiffening in spot furnace coke over the national holiday was evidently largely sentimental. Operators accumulated some surplus coke, on track, in anticipation of an extra demand, and held to higher prices until it became clear that there would be no extra demand of importance. A week before Independence Day the market moved up from \$1.50 to \$1.60, and later two or three sales were made at \$1.75, but after the holiday the free coke was found to be in excess of the demand and the price dropped to \$1.60.

There has been no negotiating on contracts. The divergence between the position of the steel works and the position of the merchant furnaces is still more pronounced. The steel trade is improving steadily, while fresh weaknesses are appearing in the merchant pig iron market, discouraging idle merchant furnaces from getting into blast. A sale of basic iron in Pittsburgh was recently made at the lowest price for years, the seller being a Lake front furnace. In consequence of these conditions the production and shipments of coke increase steadily while the demand for merchant coke, from merchant furnaces, experiences practically no increase. We quote: Prompt furnace, \$1.60; contract furnace to Jan. 1, \$1.75; prompt foundry, \$2@2.50; contract foundry, \$2.20@2.50, per net ton at ovens.

The "Courier" reports production in the Connellsville and lower Connellsville region in the week ended July 3 at 371,414 tons, an increase of 15,936 tons, and shipments at 376,957 tons, an increase of 30,580 tons. These increases were doubtless due largely to anticipation of the holiday.

**Buffalo**—There is a continuation of increased output of coke and some of the shippers are asking an advance in prices. The prospect is that if the stir continues there will be better business all along the line, but some members of the trade decline to report anything better than a larger tonnage, though they are aware that if the increase continues there will have to be an advance. From Pittsburgh comes the report that steel is more active, so there is at least a prospect of an end to the long period of dullness. Quotations are firmer on the basis of \$4.15 for best 72-hr. Connellsville foundry and \$2.20 for stock coke.

**Chicago**—Byproduct coke has been in good demand at firm prices, and foundry coke seems to gain momentum slowly. Prices are as follows: Byproduct, \$4.65@5.10; Connellsville, \$4.75@5; Wise County, \$4.75; gas coke, \$3.75@4.90, furnace, \$4.75.

## MIDDLE WESTERN

#### GENERAL REVIEW

**Sales of Indiana and Illinois coals increasing perceptibly. Eastern grades not quite so active. Screenings show further declines. Anthracite business light.**

There is no rush in the buying movement, but it makes slow and steady advances. July so far shows an increase over the June demand, and shippers expect a rush of orders toward the end of July or early in August. The weak spots in the market have been reduced to a minimum. Although storage orders are beginning to appear, a waiting attitude is still noted at most of the retail yards both in the city and country, and also among large consumers, but it is felt that this indifference is bound to quicken into activity before many weeks pass.

Indiana and Illinois shippers are now strongly urging the trade to stock up immediately while transportation facilities are favorable for furnishing prompt delivery and prices are low, but so far this has not been acted upon by most buyers. The tendency is to operate the mines only sufficient to cover orders already received, keeping prices well in hand, and shipping no consignment coal.

Interviews with the more important of operators show the unanimous feeling that future prospects look bright. This opinion is not based on any visible increased volume of business, but is rather the result of the cooperative spirit which now pervades the Western territory. This is largely due to joint selling plans which are now working with a larger degree of success in Indiana, the Springfield district, among the Franklin and Williamson County operators, and the Standard field south of East St. Louis.

#### INDIANAPOLIS

**Heavy storms interrupt the movement. Threshing and school demand opening up. Gary mills on full time.**

The heaviest July rain in 41 years of the weather bureau service in this state, washed away some sections of main lines of railroads and several mine switches, interfering to some extent with mine operations and retarding the movement of cars. The Monon was apparently the worst sufferer.

Otherwise the Indiana coal situation is not much changed. The screenings market has recovered from its recent tendency to weaken and is now firm at 80 to 85c. f.o.b. mines. There is only light demand for domestic lump, the supply of slack coming mainly from 1½-in. railroad business. The threshing demand has begun to take some of the best domestic lump and during the latter part of the month and through August, the school boards of the state will also be purchasers of this grade.

The industries are showing no marked increase in activity, but they are absorbing the current restricted output. The plants of the Illinois Steel Co. at Gary are in full operation for the first time since 1912. Some of the larger coal mines are also reported on full time and others are operating three to four days a week. Retail yards have still their summer schedule of prices.

#### CHICAGO

**Price advances have stimulated more orders. Outlook in Springfield district more encouraging than for a long time. Market for Indiana grades expanding.**

The advance in prices of Franklin County coals stimulated orders, mostly from retail dealers. Domestic sizes have been moving fairly well with few or no orders for steam sizes, and screenings have declined about 10c. per ton since last week. Williamson County operators are also receiving increased orders at the advanced prices, and have shipped a considerable volume of coal at list figures to Northwestern points.

Some of the Saline and Harrisburg County operators have also made an advance of 15c. per ton on domestic sizes, but the increased production of lump has resulted in an excess quantity of fine coal, the price on which has eased off to about 75c. per ton. The mines have averaged in operating time one day more than last week.

A fair amount of orders have been received by the Springfield operators at the higher prices which went into effect on the first of the month and the situation has been more encouraging than for many months past. Screenings are easier. There has been a small increase in the movement of railroad coal from this district.

Several Chicago retail yards have placed contracts for Indiana domestic 4-in. lump, and it is reported the prices are around \$1.50 for the entire season's requirements. The



market for this grade has expanded, and very little has been sold during the past week below \$1.35.

Smokeless coals are not so strong, and egg has been offered recently below list prices. Shipments are also coming forward more promptly, which has had a disquieting effect on the trade. Pocahontas mine run prices are well held, and average around \$1.10 to \$1.25 per ton. A slight advance in the demand for splint for steam purposes is noted.

The prices on Kentucky coals are not attractive, and still continue most variable. Quite a tonnage of fine coal is reported moving to northern Indiana points under contract for steam purposes.

Increased orders for stocking have been received by Hocking shippers, and prices are firm. Movement of Hocking for Lake delivery is very slow.

Quotations in the Chicago market are as follows:

	Williamson and Franklin Co.	Springfield	Sullivan	Clinton	Knox and Greene Cos.
Lump.....	\$1.35@1.50	\$1.25@1.50	\$1.35@1.50	\$1.35@1.50	\$1.40@1.50
Steam lump	1.25	1.15@1.25	1.10@1.15	1.15@1.25	1.20@1.30
2½-in. lump.	1.25	1.25	1.25@1.35	1.10@1.25	1.30
1½-in. lump.	1.35@1.50	1.25@1.35	1.15@1.25	1.10@1.15	1.15@1.25
Egg.....	1.25@1.35	1.10@1.25	1.00@1.10	.95@1.05	1.00@1.05
Nut.....	1.35@1.50	1.25@1.35	1.50@1.60	1.40	
No. 1 washed	1.25@1.35				
No. 2 washed	1.35@1.50				
No. 1 nut.....	1.25@1.35				
No. 2 nut.....	1.25@1.35				
Mine-run....	1.15@1.25	1.00@1.10	.85@1.00	.90@1.00	.85@1.05
Screenings..	.75@.85	.70@.80	.65@.75	.70@.75	.70@.80

	Harrisburg & Saline Co.	E. Kentucky	Pocah. & W. Va.	Smok'l. Smokeless	Hocking
Lump.....	\$1.25@1.50	\$1.35@1.60	\$1.90@2.00	\$1.35@1.60	\$1.35@1.50
1½-in. lump.	1.10@1.25	1.25@1.50		1.10@1.25	1.25@1.35
Egg.....	1.25@1.50	1.10@1.35	1.75@1.90	1.35@1.50	
Nut.....		.90@1.15	1.40@1.60	1.25@1.35	1.15@1.25
No. 1 nut.....	1.25@1.35				
No. 2 nut.....	1.25@1.35				
Mine-run....	1.10@1.15	1.00@1.10	1.10@1.25	1.10@1.25	1.25
Screenings..	.75@.80	.65@.80			

**Receipts by Lake**—Arrivals by Lake for the week to July 12 and for the month and season to date were as follows:

	Chicago		South Chicago	
Vessel	From	Tons	Vessel	From
L. C. Smith	Buffalo	6893	Wilkesbarre	Buffalo
Neptune	Buffalo	5150	John Stanton	Cleveland
John A. Donaldson	Ashtabula	6144	F. J. Durston	Buffalo
John Crerar	Oswego	2207	Goegebie	Cleveland
Albert M. Marshall	Oswego	2205	Harold B. Nye	Toledo
Lupus	Buffalo	5700		
H. G. Dalton	Oswego	2188		
Geo. C. Howe	Oswego	2247		
G. J. Grammer	Ashtabula	6700		
Indus	Buffalo	5800		
Total.....		45,234	Buffalo	37,250
			Oswego	8,847
			Ashtabula	12,844
			Cleveland	12,567
			Toledo	6,338
			Sandusky	9,411
			Total, July	58,941
			Total, season	317,187
			Total, July	18,905
			Total, season	182,425

Note—Tonnages noted in full face type are bituminous, all others being anthracite.

#### ST. LOUIS

**Larger movement than for some time and prices better. Orders continue scarce, but more inquiries are coming in from retail trade.**

The unchanged prices which have prevailed for several weeks are giving way to fluctuations here and there which encourage coal men to anticipate an improvement in the near future. Following the breaking of the deadlock among the Standard operators last week, there have been a number of changes in prices. Although the orders have not been large there has been a heavier movement during the past week than at any time since the beginning of the dull summer period.

On Williamson and Franklin washed the prevailing price for No. 1 has been \$1.30 and for No. 2 \$1.20 in the city but the list in the country has been \$1.35 for No. 1 and \$1.50 for No. 2. The demand for lump and egg has been stronger. There are more inquiries at city yards and domestic business is beginning to move. There is a perceptible strengthening of high-grade coal both in the city and the country.

	Wilm. & Frnk. Co.	Sparta	Mt. Olive	Standard
6-in. lump.....	\$1.25@1.35	\$1.25	\$1.35	\$0.95
2-in. lump.....		.95	1.25	.85
3-in. lump.....			1.25	
3½ egg.....	1.25@1.35			.80
No. 1 nut.....	1.30@1.35			
No. 2 nut.....	1.15@1.25			
No. 1 washed.....	1.30		1.50	
No. 2 washed.....	1.20			
No. 3 washed.....	1.20			
No. 4 washed.....	1.15			
No. 5 washed.....	.80			
Screenings.....	.70@.80	.80		.80

## PRODUCTION AND TRANSPORTATION STATISTICS

### CHESAPEAKE & OHIO RY.

The following is a comparative statement of the coal and coke traffic from the New River, Kanawha and Kentucky districts for May and the eleven months of the fiscal years 1914 and 1915, in short tons:

Destination	1915	%	May 1914	%	1915	%	Eleven Months 1914	%
Tidewater.....	429,466	22	298,180	17	3,468,015	18	3,238,342	19
East.....	168,463	9	187,432	10	2,212,044	12	2,389,123	14
West.....	1,184,105	62	1,224,767	67	12,343,472	65	10,361,424	61
Total.....	1,782,034		1,710,379		18,023,531		15,988,889	
From Connections								
Bituminous.....	129,281	7	110,632	6	1,061,176	5	1,034,622	6
Anthra. (local).....	99				751			
Anthracite.....	1,268		1,270		13,179		14,594	
Total.....	1,912,682	100	1,822,281	100	19,098,824	100	17,038,105	100
Coke.....	21,803		31,040		178,220		359,360	

### THE CAR SITUATION

Statistical statement No. 6 of the American Railway Association shows the gross shortage of idle railroad cars of all kinds on July 1 to be 785, which compares with 218 on June 1, and 1333 on July 1 of last year. The gross surplus of coal and gondola cars on June 1 was 83,726, and the shortage 185.

### MIDDLE WESTERN MOVEMENT

Bituminous coal forwarded from Indiana and Illinois mines over 17 principal railroads from April, 1914, to March, 1915, inclusive, was as follows, in short tons:

Illinois Central RR.....	7,329,826	Southern Railway.....	1,202,623
C. & E. I. RR.....	6,270,987	B. & O. S. W. RR.....	901,708
C. B. & Q. RR.....	5,520,764	St. L. T. & E. RR.....	691,429
C. C. & St. L. Ry.....	4,907,103	St. L. & O. F. Ry.....	561,616
Vandalia RR.....	4,526,118	L. & M. Ry.....	557,527
C. T. H. & S. E. Ry.....	2,930,604	C. I. & L. Ry.....	492,505
C. & A. RR.....	1,776,057	C. P. & St. L. Ry.....	384,642
Wabash RR.....	1,581,294	C. & N. W. Ry.....	361,919
St. L. I. M. & S. Ry.....	1,472,574		

## COAL DIVIDENDS

The following are some of the more important dividends recently announced:

**Lehigh & Wilkes-Barre Coal Co.**—Dividend of \$3.25 payable June 28 to holders of record June 17.

**Texas & Pacific Coal Co.**—Regular quarterly dividend of 1½% payable June 30 to holders of record June 20.

**Pacific Coast Co.**—Regular quarterly dividend on both the common and second preferred of 1% and 1½% on the first preferred, all payable May 1 to holders of record Apr. 27.

**Elkhorn Fuel Co.**—Dividend of 1¼% on the preferred payable May 10 to holders of record May 1.

**Lehigh Coal & Navigation Co.**—Regular quarterly dividend No. 146 of \$1 payable May 29 to holders of record Apr. 30. The transfer books do not close for this dividend.

**New Central Coal**—Dividend of 1% payable May 1 to holders of record Apr. 28.

**Central Coal & Coke**—Regular quarterly dividend on the preferred of 1¼%, payable July 1 to holders of record July 1 to July 15.

**Island Creek Coal Co.**—Regular quarterly dividend on the common of 50c. payable Aug. 1 and \$1.50 on the preferred payable July 1, to holders of record July 23 and June 23, respectively.

**Temple Coal Co.**—Regular quarterly dividend of 2%, payable July 12 to holders of record July 2.

**United Fuel Supply Co.**—Regular quarterly dividend of 2%, payable June 21 to holders of record June 10 to June 21.

**Alabama Fuel & Iron Co.**—Regular quarterly dividend of 1%, payable to holders of record June 22 to June 30.

**Lehigh Coal & Navigation Co.**—Regular quarterly dividend of \$1, payable Aug. 31 to holders of record July 31.

**Lehigh Valley Coal Sales**—Regular quarterly dividend of \$1.25, payable July 17 to holders of record July 8.

**Pittsburgh Coal Co.**—Regular quarterly dividend on the preferred of 1¼%, payable July 24 to holders of record July 15.

## FOREIGN MARKETS

### GREAT BRITAIN

**Interest centered on the labor unrest. An acute situation narrowly averted.**

**July 2**—Interest regarding coal trade matters during the past week has been very largely concentrated upon the negotiations in South Wales, and the news that a basis for the amicable settlement of the questions in dispute had been arrived at by the intervention of the Government was received with a feeling of relief, although the narrow margin by which the proposals were agreed to shows how near we were to a strike which might have vitally affected the first line of defense. It seems almost incredible that at such a time as this as many as 112 men could have been found to vote in favor of such a disastrous course, for that is what their action virtually amounted to, and in view of this formidable opposition it is by no means certain that an amicable settlement will be arrived at without great difficulty. With regard to the labor situation generally much seems to be hoped from the conference in London next week; but the attitude of the miners generally in the present crisis is by no means reassuring, although it is possible that some arrangement for an increase of the output may yet be arranged.—"The Iron and Coal Trades Review."

**July 2**—Owing to labor troubles the market is in a very unsettled condition. Stocks of coal continue heavy and for immediate loading buyers could secure substantial concessions. For forward loading colliery owners are not disposed to quote in view of the unsettled labor situation. Quotations are approximately as follows:

Best Welsh steam.....	Nominal	Best Monmouthshires....	\$6.24@6.48
Best seconds.....	Nominal	Seconds.....	5.76@6.00
Seconds.....	\$6.24@6.72	Best Cardiff smalls.....	4.68@4.80
Best dry coals.....	6.24@6.48	Cargo smalls.....	3.60@3.84

The prices for Cardiff coals are f.o.b. Cardiff, Penarth or Barry, while those for Monmouthshire descriptions are f.o.b. Newport, both net, exclusive of wharfage.

**Freights**—Outward chartering is on quiet lines, owing to the unsettled labor situation. Rates are approximately as follows:

Gibraltar.....	\$3.84	Naples.....	\$5.64	St. Vincent.....	\$4.80
Marseilles.....	4.83	Alexandria.....	6.24	Rio de Janeiro.....	6.36
Algiers.....	4.54	Port Said.....	6.24	Monte Video.....	5.76
Genoa.....	5.52	Las Palmas.....	4.56	River Plate.....	6.00

**Later**—Under date of July 15 the "Daily Chronicle" says: The outlook in South Wales is distinctly grave. The executive body of the South Wales Miners' Federation appears to be hopelessly divided, and a new conference of delegates has been summoned by telegram, to take place today. No instructions, however, have been issued by the executive body canceling the orders to the men to strike today, and it is considered almost certain, therefore, that a large part of the coal field will be idle today. This is despite the proclamation placing the dispute under the Munitions act, under which any striker becomes liable to a penalty of \$25 a day.

## CONTRACT NOTES

**Meridian, Miss.**—Contract for coal for the County of Lauderdale has been awarded to Carleton Hawkins.

**Middletown, Del.**—The Light & Water Commission at this place has awarded the contract for furnishing coal during the ensuing year to **Jesse L. Shepherd** at \$3.20 per ton.

**Buffalo, N. Y.**—Receipts of iron ore by Lake are heavy, being 625,341 tons for June and 997,600 tons for the season to July, as against 733,393 tons to the same date last season. The shipments out are in excess of receipts.

**Brazil**—An American consular officer in Brazil transmits the name and address of the representative of a firm of engineers in his district, who desires to enter into commercial relations with American exporters of coal. References are given.

**Salt Lake City, Utah**—The Board of Education at this place purchases about 6000 tons of bituminous slack per annum. The call for bids is usually advertised and the business done on a competitive basis. Bids are required to cover cost of delivery to the buildings. Address Clk., L. P. Judd, Bd. of Edu. Salt Lake City, Utah.

**New Ulm, Minn.**—The city contract for the year ending May 15, 1916, was awarded to **Bingham Bros.** of this city. Nine other firms entered bids for this business. The bid of Bingham Bros. on Pyrolite coal mined at Benton, Franklin County, Ill., was \$3.37½ per ton for 2-in. screenings and \$4.20 per ton for Youghiogheny screenings, was accepted by the council.

**Hampton Roads, Va.**—For quick loading the Chesapeake & Ohio Ry. has again made a record when on June 28 there was loaded by this road into the collier "Cyclops" 11,592 tons of cargo and bunker coal in the short space of 5 hr. 15 min. Previous to the loading of the "Cyclops" the record for fast loading of these government colliers was held by the Virginian Ry., which on June 26 loaded into the collier "Jupiter" 11,535 tons in 9½ hr.

**Coal Prices at Panama**—The Canal authorities give notice that on and after Sept. 1, 1915, the following prices will obtain at the Panama Canal for coal supplied steamships, including warships of all nations: Cristobal and Colon—Delivered alongside of vessel in lighters or in cars on the wharves, trimmed in bunkers, when handled by ship's gear (per ton), \$6. Balboa—Delivered alongside of vessel in lighters or in cars on the wharves, trimmed in bunkers, when handled by ship's gear (per ton), \$7. An additional charge of \$1 per hour will be made for the use of each mechanical hoist or crane furnished by the Panama R.R. Co.

**Anthracite State Tax**—The P. & R. Coal & Iron Co. state they have no fear of the probe into the increase of coal prices due to the imposition of the anthracite tax passed by the legislature two years ago. The legislature recently adjourned have authorized an investigation into the increase of retail prices, but the officials state that while the retail price may have been increased 25c. per ton they have only added the tax to their usual price, which does not amount to 10c. per ton at the maximum. It has been the practice of this company to render their bills with the tax shown as a separate item and in the event that a refund should ever be required, their customers will have no difficulty in ascertaining the amount due them.

**Boston**—Recent enactment in Massachusetts of legislation designed to forbid the New Haven's buying coal from any corporation having a director who "interlocks" with that railroad makes interesting the fact that it has recently negotiated another contract with New England Coal & Coke Co. The New Haven's annual purchase of coal from this company is understood to be in the vicinity of 400,000 tons. Within a fortnight this coal company has retired from its board four directors who are on Massachusetts railroad directorates. There are two other big contracts included in the New Haven's coal supply. One is with Keystone Coal Co., which, after Agent Mellen, a son of former President Mellen of the railroad, had resigned under pressure from the transportation interests, secured a renewal of the sales-contract as of July 1 last. Another contract, running for five years to August, 1916, is with Virginia Iron, Coal & Coke Co., which has a contract also with the Boston & Maine. The recent Massachusetts legislation purports to require that Henry K. McHarg be out of the directorate of either that company or the New Haven before either the New Haven or the Boston & Maine can again buy coal from the Virginia Co. "Boston News Bureau" —(For additional notes on this contract see Vol. 7, p. 1038).

**Pittsburgh, Penn.**—The United States Engineers Office, opened bids June 21 for coal required for the operation of locks on the Monongahela and Ohio Rivers and work tributary thereto for the fiscal year ending June 30, 1916, then awarded contracts as follows: **Clyde Coal Co.**, nut and slack for Locks Nos. 1 to 5, Monongahela River, 3.9c. per bu.; nut and slack for Lock No. 6, Monongahela River, 3.95c., delivered in flats. **W. Harry Brown**, mine-run for Locks Nos. 1 to 5, Monongahela River, 4.75c.; mine-run for Lock No. 6, Monongahela River, 4.50c., delivered in flats. **C. F. Reed**, Charleroi; nut for Lock No. 4, Monongahela River, 5.5c., delivered by wagon. **Consumers Coal Co.**, mine-run for Lock No. 4, Monongahela River, 5.87c., delivered by wagon. **Clyde Coal Co.**, nut at 4.25c. and mine-run at 5.25c. for Lock No. 1, Ohio River, delivered in flats; nut and slack, 5.50c.; mine-run, 6.50c., for Lock No. 7, Ohio River, delivered in flats; nut and slack, 4.18c.; mine-run, 3.8c., delivered to steamers at tipples or in harbor; nut and slack, 4.25c.; mine-run, 5.25c., delivered in flats at Point Bridge landing. **Pittsburgh Coal Co.**, mine-run, \$1.50 per net ton, for Lock No. 1, Ohio River, delivered by rail. **Moreland Coke Co.**, mine-run; \$1.63 for Locks Nos. 4, 5 and 6, Ohio River; \$1.64½ for Lock No. 7, Ohio River, Midland, Penn.; \$1.39½ for Lock No. 8, Ohio River, Kenilworth, W. Va.; \$1.39½ for Lock No. 9, Ohio River, New Cumberland, W. Va.; \$1.24½ for Lock No. 10, Ohio River, Steubenville, Ohio. **Pittsburgh Coal Co.**, mine-run, \$1.20, for Lock No. 3, Monongahela river, Elizabeth, Penn.



## Coal Contracts Pending

*The purpose of this department is to diffuse accurate information of prospective purchases and prices with a view to affording equal opportunity to all, promoting market stability and inculcating sound business principles in the coal trade.*

For the official advertisements of bids wanted see the Contracts-to-Be-Let Section on Page 18.

### Supplemental Notes

Under this heading additional or supplemental information regarding old contracts appears, together with the page number of the original notice.

**No. 854—Tompkinsville, N. Y.**—Proposals on this contract (Vol. 7, p. 1085), which provide for furnishing the Lighthouse Service with bituminous and anthracite coal at New York, New London, Conn., and Newport, R. I., will be received until 2 p.m., July 28. Blank proposals and further particulars may be obtained on application. Address Lighthouse Inspector, Tompkinsville, N. Y.

**No. 875—Idaho Springs, Colo.**—The Boston-Colorado Power & Water Co. advises that this contract (Vol. 7, p. 1086), which provides for furnishing the company with approximately 3500 tons of slack coal, will probably not be negotiated until some time in September. Address Pur. Agt., Boston-Colorado Power & Water Co., Idaho Springs, Colo.

**No. 895—Monticello, Ind.**—Bids were received on this contract (Vol. 7, p. 1086), which provides for furnishing the Court House, Jail, and County Asylum with coal from the following companies: G. A. Kellinburgh; Central States Bridge Co., Rochester Bridge Co., Elkhart Bridge Co., F. M. Williams. Address Audr. A. G. Fisher, Bd. of County Comrs. Monticello, Ind.

**No. 918—Kansas City, Mo.**—This contract (Vol. 7, p. 1127), which provides for furnishing the local Water Department City Hall, Hospitals, etc., with approximately 25,000 tons of coal, will be let some time during the current month. Address City Pur. Agt. John P. Langan, City Hall, Kansas City, Mo.

**No. 935—New York, N. Y.**—Bids on this contract (Vol. 7, p. 1127), which provides for furnishing and delivering 2000 gross tons of No. 2 buckwheat to the Department of Docks and Ferries, were as follows: C. D. Norton & Co., \$2.18; Pattison & Bowns, \$2.14; George D. Harris & Co., \$2.26; Gavin Rowe, \$2.21; Clarksburg Coal Mining Co., \$1.94. Address Commissioner of Docks and Ferries, R. A. C. Smith, Pier "A", Battery Place, New York City.

**No. 991—Storrs, Conn.**—Sealed bids will be received until noon, July 20, for furnishing the Connecticut Agricultural College with coal (p. 76). Separate bids should be submitted on each size. Address Connecticut Agricultural College, Storrs, Conn.

### New Business

**+1023—Wynne, Ark.**—The Wynne Light & Water-Works at this place consumes about 1200 tons of Kentucky bituminous coal per annum. The contracts are generally let in August and the approximate cost is \$3.35 per ton. The business is let on competitive bids. Address Purchasing Agent, Wynne Light & Water-Works, Wynne, Ark.

**1024—Kansas City, Mo.**—The Kansas City Stock Yards Co., one of the larger consumers of coal in this district, buys entirely in the open market. It consumes from three to five cars per week. Address Purchasing Agent, Kansas City Stock Yards Co., Kansas City, Mo.

**+1025—Joliet, Ill.**—The Illinois State Penitentiary will receive sealed bids until 10 a.m., July 31, for furnishing its annual coal requirements, estimated at approximately 20,000 tons. Bids are requested on mine-run and 1½-in. screenings. All proposals must be accompanied by a certified check for \$200. Bids must be submitted on blanks which may be obtained on application. The contract is to run during the fiscal year beginning Aug. 2. Address Secy. Charles W. Faltz, Comr. of Illinois State Penitentiary, Joliet, Ill.

**1026—Kansas City, Mo.**—Smith, McCord & Townsend are said to be considering a contract for furnishing the fuel required in their wholesale dry goods business. About 150 tons will be bought. Address Pres. Leon Smith, Smith, McCord & Townsend, Kansas City, Mo.

**+1027—Rapids City, S. D.**—The Independent School District of this place will receive bids until noon, July 27, for furnishing approximately 200 tons of coal. Bids should include cost of delivery to the various school buildings as required. Address Secy. W. F. Haafke, Independent School District, Rapids City, S. D.

**1028—Kansas City, Mo.**—The Rossington Hotel is said to be considering contracting for about 250 tons of Cherokee slack and nut coal some time during the current month. Address Purchasing Agent, the Rossington Hotel, Troost and 30th St., Kansas City, Mo.

**1029—Kansas City, Mo.**—The local branch of the Cudahy Packing Co. is in the market for its annual supply of coal, involving about 190 tons of Cherokee slack per day. Address Purchasing Agent, Cudahy Packing Co., Kansas City, Mo.

**1030—Kansas City, Mo.**—Spalding's Commercial College, using 10 cars of soft coal a month, will let its contract about Aug. 1. Address Pres. J. F. Spalding, Tenth and Oak St., Kansas City, Mo.

**1031—Kansas City, Mo.**—The local branch of the Ford Motor Co. will let its annual fuel contract some time during the current month. It consumes about two carloads of slack coal per month. Address Purchasing Agent, Ford Motor Co., 11th and Winchester Ave., Kansas City, Mo.

**+1032—Cleveland, Ohio.**—The Board of Education at this place will receive bids until noon, Aug. 2, for furnishing its annual fuel requirements during the ensuing year, about as follows: Anthracite, 300 tons; bituminous lump, 3000 tons; bituminous nut, 2500 tons; bituminous slack, 25,000 tons; semibituminous mine-run, 4000 tons; semibituminous lump, 4000 tons. All proposals must be accompanied by a surety bond for \$2500, and the bidder must be prepared to enter into a contract within five days of receipt of notice. Specifications may be obtained on application, and all proposals must be submitted on blanks prepared for that purpose. The successful bidder will be required to furnish a corporate surety bond for 50% of the estimated amount of the contract. Address Dir. of Schools F. C. Hogen, School Headquarters, Rockwell Ave. and East Sixth St., Cleveland, Ohio.

**1033—Kansas City, Mo.**—The Cochrane Packing Co. at this place, which buys its coal in the open market, is said to be considering entering into a contract. It consumes about two cars of mine-run per month. Address Treas. C. E. Rowett, Cochrane Packing Co., Kansas City, Mo.

**+1034—Youngstown, Ohio.**—The Board of Education at this place will contract some time in August for its annual requirements of coal, involving about 5000 tons of Pittsburgh lump. The current contract is being filled at \$2.80 per ton. The call for bids is advertised. Address Board of Education, Youngstown, Ohio.

**+1035—Pueblo, Colo.**—School District No. 1 at this place usually contracts some time in August for its annual requirements of coal, amounting to about 1500 tons. The present contract is being filled with steam slack, which is costing \$2.25 per ton. In addition to this contract there is another School District No. 20 which is not included in this. Address Secy. E. J. Scott, School Dist. No. 1, Pueblo, Colo.

**1036—Kansas City, Mo.**—The Frankel Frank Co. at this place usually contracts for its annual requirements of coal some time during the current month. It requires about 200 tons of bituminous coal. Address Purchasing Agent, Frankel Frank Co., 10th St. and Broadway, Kansas City, Mo.

**+1037—Springfield, Ohio.**—The County Commissioners will receive bids until 10 a.m., July 22, for furnishing approximately 800 tons of bituminous coal. One-half is to be delivered to the County Infirmary and the balance to the Court House. Address County Commissioners, Springfield, Ohio.

**1038—Kansas City, Mo.**—Hugh Mathews, who has been buying the coal required at his machine shop in the open market, is said to be considering entering into a contract dur-

ing the ensuing year. About 250 tons of lump and slack will be required. Address Hugh Mathews, Fifth and Washington St., Kansas City, Mo.

**+1039—Kansas City, Mo.**—The Butler Manufacturing Co. at this place will be in the market some time during the current month for about five cars of Cherokee nut coal. Address Asst. Supt. Fred. A. Ruff, 13th St. and Eastern Ave., Centropolis, Kansas City, Mo.

**+1040—East Tawas, Mich.**—The local Water and Light Department will be in the market some time next month for about 1300 tons of steam lump coal, which is usually bought at approximately \$3.10 per ton. It is understood that the business is not let on competitive bids. Address City Clk. Alfred J. Noel, East Tawas, Mich.

**+1041—Yonkers, N. Y.**—The Board of Education received sealed bids until 8 p.m., July 16 for furnishing approximately 3000 tons of free burning white ash anthracite. Egg coal was specified almost exclusively the only other sizes being 550 tons of pea and less than 100 tons of nut. Address Secretary Board of Education, Yonkers, N. Y.

**1042—Ionia, Mich.**—The warden of the Michigan Reformatory at this point will advertise next month for bids covering the 4000 tons of mine-run coal required by the reformatory for the season. The warden reports that bids will not be considered until that time. Address Warden Otis Fuller, Michigan Reformatory, Ionia, Mich.

**1043—Chicago, Ill.**—L. A. Budlong Co. will be in the market about Aug. 15 for approximately 12 cars West Virginia splint egg. Address Purchasing Agent, L. A. Budlong Co., Chicago, Ill.

**1044—Kansas City, Mo.**—The Sewell Paint & Glass Co. will contract during August for its year's supply of coal, amounting to about 35 tons of nut per month. Address Purchasing Agent, Sewell Paint & Glass Co., Kansas City, Mo.

**+1045—Decatur, Ill.**—The Board of Education at this place generally contracts in August for its annual requirements of coal, involving about 3845 tons of mine-run and 1¼-in. screened nut. The nut coal is usually bought at \$2 per ton and the mine-run at \$2.20. The call for bids is advertised. Address J. F. Roach, Bd. of Edu., High School, Decatur, Ill.

**+1046—Two Harbors, Minn.**—The Light and Water Department at this place generally contracts in either August or September for its annual requirements of coal, involving about 5000 tons of bituminous and 1200 tons of anthracite. The bituminous is usually bought at approximately \$2.82 per ton and the anthracite (nut coal) at \$6.47. The business is let on competitive bids. Address Light and Water Dept., Two Harbors, Minn.

**1047—Kansas City, Mo.**—William Volker & Co. will buy four cars of soft coal during the month of August. Address Purchasing Agent, William Volker & Co., Main and Second St., Kansas City, Mo.

**1048—Middletown, Ohio.**—The Colin Gardner Paper Co. will be in the market for its annual coal supply on Aug. 15. Its normal requirements aggregate about 50,000 tons of nut and slack stoker coal. Deliveries are to be made in about equal weekly installments as specified and must be in hopper-bottom cars and delivered over the Big Four Ry. A grade of coal that will run satisfactorily over Murphy stokers, and particularly one that will not clinker, is required. Address Asst. Treas. M. S. Johnston, the Colin Gardner Paper Co., Middletown, Ohio.

**+1049—Sioux City, Iowa.**—The Board of Education at this place will contract some time in August for its annual requirements of coal, involving about 2500 tons. "Purity" steam coal is being used on the present contract, for which \$3.93 per ton is being paid. Address Purchasing Committee, Board of Education, Sioux City, Iowa.

**1050—Kansas City, Mo.**—Baker & Lockwood will let a contract about Aug. 1 for six cars of semianthracite slack and Cherokee nut. Its plant is located at the corner of Wyandotte and Sixth St. Address Pur. Agt. C. R. Summer-ville, Baker & Lockwood, Wyandotte and Sixth St., Kansas City, Mo.

**+1051—Zanesville, Ohio.**—The Board of Education here usually contracts during August for its annual requirements of coal, involving about 1350 tons of mine-run. Bids are requested by letter. The usual price is about \$2 per ton. Address Clk. C. J. Weaver, Bd. of Edu., Zanesville, Ohio.

**+1052—Savannah, Ga.**—The Board of Education at this place will purchase about 275 tons of anthracite some time in August. The call for bids is advertised and the business is done with local dealers. Address Committee on Supplies, Board of Education, Savannah, Ga.

**1053—Kansas City, Mo.**—The McPike Drug Co. will con-

tract during the latter part of August for its yearly supply of slack, of which it uses about eight tons per day. Address Pres. W. T. Bland, McPike Drug Co., Central and Seventh St., Kansas City, Mo.

**+1054—Ottumwa, Iowa.**—The School Board here will contract some time next month for about 1600 tons of screened lump coal, which is usually bought at \$2.70. The call for bids is advertised. Address School Board, Ottumwa, Iowa.

**+1055—Grand Island, Neb.**—The Water and Light Commission at this place usually contracts some time in August for about 400 tons of coal. The business is let on competitive bids and usually goes at about \$4 per ton. Wier City nut coal is being used on the present contract. Address J. H. Miller, Water and Light Dept., Grand Island, Neb.

**1056—Kansas City, Mo.**—The Gillpatrick Laundry Co. will let its coal contract during the month of August. It uses about 100 tons of slack coal per month. Address Purchasing Agent, Gillpatrick Laundry Co., Vine and 15th St., Kansas City, Mo.

**+1057—Superior, Wis.**—The Board of Education will contract some time in August for its annual supply of coal, involving about 2500 tons of lignite. The call for bids is advertised and the customary price is about \$2.80 per ton. Address Board of Education, Superior, Wis.

**+1058—Plymouth, Mass.**—The County Commissioners at this place received bids until 9:30 a.m., July 13, for the coal required during the year ending July 1, 1916. About 400 tons of egg coal is required, to be delivered f.o.b. cars or wharf at Plymouth, probably at the rate of two carloads at a time, and 100 tons of Pocahontas, Cumberland, Georges Creek coal, to be delivered at the Court House at Brockton, probably at the rate of one carload at a time. Address County Comm. Lyman P. Thomas, Plymouth, Mass.

**+1059—Toledo, Ohio.**—The Board of County Commissioners will receive sealed bids until 10 a.m., Aug. 10, for furnishing the coal required during the fiscal year beginning Aug. 17 at the Lucas County Court House, Armory and Power House. Deliveries are to be made as required, and all bids must be accompanied by a certified check for \$100. Bids will also be received at the same time for furnishing the coal required at the Lucas County Infirmary during the same period. Bids on this last item should be made f.o.b. cars on railroad siding at Infirmary, and must be accompanied by a certified check for \$100. Address Audr. Charles J. Sanzenbacher, Lucas County, Toledo, Ohio.

**1060—Louisville, Ky.**—B. F. Avery & Sons will issue specifications about July 20 for a six months' supply of nut and slack coal. About 75 cars will be required altogether, and deliveries will be at the rate of three cars per week beginning Oct. 1. Address Purchasing Agent, B. F. Avery & Sons, Louisville, Ky.

**+1061—Mason City, Iowa.**—Bids were received until 11 a.m., July 12, for furnishing the Court House, County Farm and Hospital with about 1800 tons of coal during the ensuing year. Bids on the requirements for the Court House were to include cost of delivery in the bins, and those for the County Farm and Hospital were f.o.b. cars at Emery. Address County Audr. George E. Frost, Mason City, Iowa.

**1062—Kansas City, Mo.**—The Faultless Starch Co., 1025-27 East Eighth St., will be in the market for about 150 tons of soft coal during the month of August. Address Pres. J. G. Beecham, Faultless Starch Co., 1025-27 East Eighth St., Kansas City, Mo.

**+1063—South Framingham, Mass.**—Sealed bids were received by the Board of Education at this place for furnishing approximately 700 tons of bituminous and anthracite coal to be delivered at the local school buildings between Aug. 1 and May 1. Address Superintendent of Schools, Board of Education, South Framingham, Mass.

**+1064—Joliet, Ill.**—The City Council received bids until July 12 for supplying coal as follows: Best Illinois or Indiana mine-run for use at the Washington St. plant of the city water-works; 225 tons best Illinois mine-run and 100 tons of Pocahontas to be delivered as required for the Fire and Police Department; eight carloads southern Illinois 6-in. lump f.o.b. crematory. All deliveries are to be completed by Apr. 30 of next year. Address City Clk. Henry W. Odenthal, Joliet, Ill.

**1065—Kansas City, Kan.**—The Board of Education of Kansas City, Kan., will let its annual coal contract Aug. 5, at which time bids will be opened for 2000 tons of Cherokee lump. Address Pur. Agt. L. Friedman, Bd. of Edu., Kansas City, Kan.

**+1066—Pella, Iowa.**—Bids will be received until July 20 for furnishing the City Electric Light Plant with steam, mine-run and lump coal, bids to include cost of delivery in the bin. Address Clk. A. C. Kuyper, Pella, Iowa.



†1067—**Springfield, Ohio**—Sealed bids will be received until 10 a.m., July 22, for furnishing and delivering coal as follows: 400 tons of Ohio, West Virginia or Kentucky splint mine-run to be delivered at the Court House, and the same amount and grade to be delivered f.o.b. sidetrack at the new infirmary at Donnellsville station. A certified check for \$100 must accompany all bids. Address County Audr. J. M. Pierce, Springfield, Ohio.

†1068—**New York, N. Y.**—The Department of Docks and Ferries will receive bids until noon on Wednesday, July 21, for furnishing and delivering 3000 gross tons of egg coal. Full particulars can be obtained at the headquarters of the Dock Department. Address Dock Comr. R. A. C. Smith, Pier "A," North River, New York.

†1069—**Olivia, Minn.**—The Board of Education for Independent School District No. 79 received sealed bids until 6 p.m., July 10, for furnishing the district with 100 tons of Youghiogheny lump coal during the ensuing year. Address Secy. George A. Peterson, Bd. of Edu., Olivia, Minn.

†1070—**Ashtabula, Ohio**—The Board of Education will receive sealed bids until July 20 for furnishing approximately 100 tons of the best three-quarter Pittsburgh coal to be delivered to the local school building as required during the ensuing year. Address Clk. Charles E. Peck, Bd. of Edu., Ashtabula, Ohio.

†1071—**Chippewa Falls, Wis.**—The State Asylum at this place received sealed bids until 9 a.m., July 11, for furnishing 800 tons of screened West Virginia splint, Kentucky block and Hocking Valley lump coal to be delivered f.o.b. cars at the Asylum spur and Shawtown spur track. Deliveries are to be made as required between Aug. 1 of the current year and July 1, next year. Address Secy. Nan Macleod, State Asylum, Chippewa Falls, Wis.

†1072—**Wadena, Minn.**—The City Government received sealed bids until July 14 for furnishing approximately 1000 tons of Youghiogheny run-of-pile coal. Address Village Recorder A. C. Murray, Wadena, Minn.

†1073—**Bridgeport, Conn.**—Sealed bids were received until noon, June 9, for furnishing approximately 500 tons of bituminous coal to be used at the Public Library, the city yard and by the Fire Department. The business last year was done at \$3.80 a ton. Address City Clerk, Bridgeport, Conn.

†1074—**Buffalo, N. Y.**—The lighthouse inspector at this place will receive sealed bids for furnishing the fuel required by the lighthouse tender "Crocus" during the fiscal year ending June 30. Blank proposal forms and particulars may be had on application. Address Lighthouse Inspector, Buffalo, N. Y.

†1075—**Louisville, Ky.**—The Louisville Industrial School of Reform, owned by the city and administered by a board, is calling for bids for a year's supply of coal. Pittsburgh and Kentucky lump and mine-run will be required, and bids will be received up to July 20. Last year the deliveries amounted to about 1000 tons. Address Secy. C. F. Leathers, Louisville Industrial School of Reform, Louisville, Ky.

†1076—**New Cumberland, W. Va.**—The Board of Education will receive sealed bids until noon, July 17, for furnishing coal to be delivered at the local school buildings. Address Secy. C. S. Bradley, Bd. of Edu., New Cumberland, W. Va.

†1077—**Carlisle, Ky.**—The County Board of Education will receive bids until 1 p.m., July 21, for furnishing the 10 schools in that district with red ash block Jellico coal or an equally good brand. Deliveries are to be completed during July and August. Address Lida E. Gardner, County Bd. of Edu., Carlisle, Ky.

†1078—**Ionia, Mich.**—The Board of Trustees for the Ionia State Hospital received sealed bids until July 13 for furnishing approximately 2500 tons of bituminous nut and slack coal. Bidders were required to submit an analysis of the coal and quotations were made f.o.b. cars on sidetrack at the hospital. Address Medical Supt. Dr. R. H. Haskell, Ionia State Hospital, Ionia, Mich.

†1079—**Charleston, Ill.**—The Charleston Union School District received bids until 5 p.m., July 13, for furnishing the various school buildings with coal. Deliveries are to be completed by Aug. 20 and about 400 tons will be required. Address Chn. F. M. Mealey, Fuel Com., Charleston Union School District, Charleston, Ill.

†1080—**Kansas City, Mo.**—Morris & Co., packer, will let its yearly coal contract about the first of August. It uses about 750 tons of Cherokee slack per week during the summer months and 1200 tons per week during the winter months.

†1081—**Frankfort, Ohio**—The Board of Education of Concord Township will receive bids until 1 p.m., July 17, for fur-

nishing 2200 bu. of lump coal. About 1500 bu. are to be delivered on track at Roxabel and the balance on track at Austin. Deliveries are to be completed by Aug. 5. The coal is to be screened over a 4-in. bar and must be forked from the car and weighed on wagon. Address Clerk, Board of Education, Concord Township, Frankfort, Ohio.

†1082—**Sioux Falls, S. D.**—Sealed bids were received until 9 a.m., July 12, for furnishing the City Water-Works Pumping Station with approximately 1000 tons of Wilmington screened lump coal, Youghiogheny No. 2 pool gas coal, dock-run or screened lump, Elkhorn, Ky., dock-run, or screenings. Bids are to include cost of delivery to the pumping station as required until Apr. 1, 1916. Address City Audr. Walter C. Leyse, Sioux Falls, S. D.

†1083—**Richmond, Ind.**—The Wayne County Commissioners will receive bids until July 17 for furnishing the various county institutions with coal during the ensuing year. Address Audr. L. S. Bowman, County Comrs., Richmond, Ind.

†1084—**New Lexington, Ohio**—Sealed bids will be received by the Board of Education at this place until 7 p.m., July 31, for furnishing the local schools with coal. Address Clk. C. O. Ferguson, Bd. of Edu., Pleasant Township, New Lexington, Ohio.

†1085—**Wilkesburg, Penn.**—The Borough Government at this place received bids until noon, July 12, for furnishing the local schools with lump and slack coal. Address Dr. F. R. Stotler, Chn. Com. on Supplies, 611 Penn Ave., Wilkesburg, Penn.

†1086—**Clinton, Mo.**—Sealed bids will be received until 2 p.m., Aug. 4, for furnishing the local Court House, County Jail and County Home with coal. Address Deputy Thornton Jennings, Clinton, Mo.

†1087—**Wells, Minn.**—The School Board at this place received sealed bids until July 10 for furnishing its coal requirements. Quotations were to be f.o.b. sidetrack at this place. Address Secy. E. O. Oren, Bd. of Edu., Wells, Minn.

†1088—**New York, N. Y.**—Bids will be received until 2 p.m., July 22, by the Department of Bridges of New York City for furnishing and delivering 250 gross tons of No. 1 buckwheat and 250 gross tons of mine-run for use on the Brooklyn Bridge. Further particulars can be obtained on application. Address Bridge Comr. F. J. H. Kracke, Municipal Bldg., New York City.

†1089—**St. Louis, Mo.**—Bids for supplying the local Water-Works with fuel requirements during the ensuing year will be requested some time in August. Lump and washed coal are used, and the plant consumes about \$100,000 worth of coal a year. The department is considering the advisability of using screenings in the future. Address Board of Water Commissioners, St. Louis, Mo.

†1090—**Columbus, Ohio**—The Public Service Department will receive sealed bids until noon, July 27, for furnishing coal approximately as follows: Municipal Light Plant, 10,000 tons; Scioto River Pumping Station, 3500 tons; Garbage Reduction Works, 2500 tons; City Hall Building, 140 tons; Schiller Park, 50 tons; Water-Works Shop, 75 tons; State St. Yard, 25 tons; Goodale Park, 20 tons; Recreation Department, 70 tons. Blank forms and specifications can be had on application. All bids must be accompanied by certified check for not less than 10% of the total amount of the bid, and the successful bidder will be required to furnish a bond of 50% of the amount of the bid. Address Clk. Paul B. Kemper, Public Service Comm., Columbus, Ohio.

†1091—**Beamsville, Ont.**—The local School Board will receive bids until July 20 for furnishing the schools with anthracite stove coal. Deliveries are to be made in August. Address Secy. J. A. Sinclair, Bd. of Edu., Beamsville, Ont.

†1092—**Muskegon, Mich.**—Sealed bids will be received until 8 p.m., July 19, for furnishing the Fire Department, City Hall, Water Department and Poor Department with coal during the ensuing year. Address City Recorder B. H. Tellman, Muskegon, Mich.

†1093—**Franklin, Penn.**—Sealed proposals will be received until 5 p.m., Aug. 2, for furnishing the local City Government with approximately 2400 tons of three-quarter lump coal. Quotations should be made in carload lots, f.o.b. New York Central switch at pump station. Deliveries are to be as required and will be completed before Jan. 1. Address City Clk. J. G. Crawford, Franklin, Penn.

†1094—**Fairfield, Iowa**—Bids will be received until noon, July 19, for furnishing the local School District with 1200 bu. of coal during the ensuing year. Address Secy. J. W. Dole, Independent School District, Fairfield, Iowa.

†1095—**Lynn, Mass.**—The City Government will receive bids until 10 a.m., July 16, for furnishing coal as follows:

Franklin County stove, 50 tons; Logan, 100 tons; New River, 100 tons; white ash broken, 300 tons; white ash stove, 500 tons; white ash egg, 1000 tons; Cumberland, Pocahontas or George's Creek, 2000 tons. Deliveries are to be made as required during the fiscal year beginning Aug. 1. Address City Pur. Agt. Albert S. Carleton, City Hall, Lynn, Mass.

## Contracts Awarded

Note—Successful bidders are noted in bold face type.

†No. 362—Portland, Ore.—This contract (Vol. 7, pp. 566, 707), which provides for furnishing the local schools with coal during the ensuing year has been awarded as follows: **Edlef-sen Fuel Co.**, steam coal at \$5.49; **Pacific Coast Coal Co.**, briquettes at \$7, **Liberty Coal & Iron Co.**, steam coal at \$5.50. About 640 tons was awarded to each firm. Address Clk. R. H. Thomas, Bd. of Edu., Portland, Ore.

No. 461—Boston, Mass.—The award to the **Gorman-Leonard Coal Co.** for supplying the Infirmary Department and City Hospital on this contract (Vol. 7, pp. 627, 748, 794, 956) has been approved by the Acting Mayor. Address Supt. of Supplies D. Frank Doherty, Room 808, City Hall Annex, Boston, Mass.

No. 784—Louisville, Ky.—This contract (Vol. 7, p. 1005), which provides for furnishing William Schuff & Co. with about two carloads of nut and slack coal per month has been awarded to the **Western Kentucky Fuel Co.** Address Supt. F. W. Wagner, William Schuff & Co., 803 S. 12th St., Louisville, Ky.

†No. 806—Galveston, Tex.—This contract (p. 1006), which provides for furnishing the Depot Quartermaster at the Port of Embarkation with coal during the ensuing year, has been awarded to the **Clinchfield Fuel Co.**, on the following basis per short ton: Delivered and trimmed in transport bunkers from contractor's barge, \$6.50 at Galveston, and \$6.20 at Texas City; same not trimmed 40c. per ton less; same as the first except delivered from contractor's dock, \$6.15 at Galveston, and \$5.95 at Texas City; same delivered on transport dock, or in coal ports, \$5.75 per ton at Galveston, and \$5.55 at Texas City; delivered in contractor's barges alongside of transports, \$5.90 at Galveston, and \$5.60 at Texas City; delivered on Government barges at contractor's dock, and distributed by a Government tug \$5.55 at Galveston, and \$5.35 at Texas City; delivered from chutes into transports at contractors dock (not trimmed), \$5.65 at Galveston and \$5.45 at Texas City; same delivered into contractors barges and distributed by Government tugs, \$5.70 at Galveston, and \$5.50 at Texas City. The contract will be filled on Clinchfield Navigation Coal from the Clinchfield Mine, Dante, Russel Co., Va.; this coal runs 14,000 B.t.u. Address Lt.-Col. Quartermaster Corps, C. R. Krauthoff, Depot Quartermaster, Galveston, Tex.

†No. 819—Austin, Tex.—This contract (Vol. 7, pp. 1048, 1026), which provides for furnishing the State Charitable Institutions with coal, has been awarded to the following companies: **Wagner Wells Mfg. Co.**; **Richardson; Walter Tipps; Aherns Ott Mfg. Co.**. The gross consideration aggregates about \$40,000. Address State Purch. Agt. George Leavy, Austin, Tex.

†No. 820—Indianapolis, Ind.—This contract (Vol. 7, p. 1049), which provides for furnishing the State House with coal during the ensuing year has been awarded to the **Indianapolis Motor & Fuel Co.** at \$3.21 per ton for No. 3 vein Pocahontas coal. The tonnage is small, to amount to about 1200 tons. Address State Engineer, State House, Indianapolis, Ind.

†No. 828—Grand Forks, N. D.—This contract (p. 1049), which provides for furnishing the University of North Dakota with approximately 3000 tons of coal, has been awarded to the **Stinson Implement & Fuel Co.**, in Youghiogheny screenings at \$2.42 per ton on a heat unit basis, f.o.b. dock. A B.t.u. value (on a wet basis) of 14,150 is guaranteed, and fixed carbon of 58%. Address Secy. J. W. Wilkerson, University of North Dakota, Grand Forks, N. D.

†No. 839—Hoboken, N. J.—This contract (Vol. 7, pp. 1049, 1085), which provides for furnishing the local Board of Education with about 2000 tons of coal, has been awarded to the **Consumers' Coal Co.** Address Business Mgr. R. A. Marnell, Bd. of Edu., Hoboken, N. J.

†No. 843—Columbus, Ohio—This contract (Vol. 7, p. 1049, Vol. 8, p. 40), which provides for furnishing the fuel requirements of Franklin County has been awarded as follows: **Peacock Coal Co.**, 4000 tons Pomeroy mine run, delivered at Infirmary switch \$1.60; **M. A. Suydam & Co.**, 12,000 tons same, delivered to the Court House and 215 tons delivered to the Memorial Bldg. and the County Morgue at \$1.95. Address Clk. John Scott, Bd. of County Comrs., Columbus, Ohio.

†No. 844—Lexington, Ky.—This contract (Vol. 7, p. 1049), which provides for furnishing the local Board of Education

with about 1000 tons of coal, has been let to the **Kinhead Coal Co.** on Cumberland lump coal at \$2.85. This contract last year was let at \$2.90. The coal is screened over a 2-in. shaker screen. Deliveries are to be made as required. Address Clk. J. H. Sinwall, Bd. of Edu., Lexington, Ky.

†No. 852—Canal Dover, Ohio—This contract (Vol. 7, p. 1085), which provides for furnishing the Public Service Department with approximately 1500 tons of mine-run coal, was awarded to **Erwin Bros.** at \$1.35 per ton. Other bids on this contract were **George Gintz**, \$1.64; **John Hartz**, \$1.59; **Alonzo Gibbs**, \$1.45. Address, Dir. Osmond Salmond, Public Service Commission, Canal Dover, Ohio.

†No. 879—Peabody, Mass.—This contract (Vol. 7, p. 1086), which provides for furnishing the local Electric Light Department with about 5000 tons of coal, has been let to **George W. Pickering**, of Salem, at \$4.59 per ton for Pocahontas coal. Other bids on this contract were \$4.67 and \$4.70. Address Mgr. Warren D. King, Peabody Electric Light Dept., Peabody, Mass.

†No. 884—Ottawa, Can.—This contract (Vol. 7, p. 1086), which provides for furnishing the County Jail and Court House with about 250 tons of anthracite egg has been awarded to the **C. C. Kay Co.** at \$7 per ton. Other bids on this contract range from \$7.25 per ton upward. Address County Clk. Charles MacNab, Ottawa, Can.

†No. 887—Binghamton, N. Y.—This contract (Vol. 7, p. 1086), which provides for furnishing the City Government with coal, has been awarded to **Ford, Powell & Hammond** and **O. W. Sears & Son**. Bids of the various companies, including those to whom the contracts were awarded, were as follows:

	Egg	Chest-nut	Stove	Pea	Bitumin-ous	Buck-wheat
<b>Ford, Powell &amp; Hammond</b> .....	\$5.35	\$5.57	\$5.35	\$4.35	\$3.45	\$3.15
<b>O. W. Sears &amp; Son</b> ....	5.55	5.80	5.55	4.00	2.98	3.15
Binghamton Coal Co....	5.70	5.90	5.70	4.70	3.20	
Charles McKinney.....	5.70	6.00	5.70	4.60		3.30
Economy Coal Co.....	5.60	5.85	5.70	4.85	3.35	3.10
S. M. Elliott.....	5.40	6.00	5.40	4.20	3.30	3.15

Address Dept. of Public Works, Binghamton, N. Y.

†No. 919—Pontiac, Mich.—This contract (Vol. 7, p. 1127), which provides for furnishing the local Board of Education with coal during the ensuing year, has been awarded as follows: **Gates Bros.**, West Virginia  $\frac{1}{4}$  lump, \$3.20; **J. L. Sibley Co.**, anthracite, egg and stove coal, \$7 per ton. Address Secy. Elmer L. Webster, Bd. of Edu., Pontiac, Mich.

†No. 920—Lincoln, Neb.—This contract (Vol. 7, p. 1127), which provides for furnishing the state institutions with coal during the ensuing year, has been awarded as follows:

	Price	Ton-nage
BEATRICE (Institution for Feeble-minded Youth)		
Coal Hill Coal Co., Omaha, deep shaft, mill.....	\$3.75	2000
Coal Hill Coal Co., Omaha, deep shaft, slack.....	3.55	2000
Coal Hill Coal Co., Omaha Range, Routt Co., Colo. nut.....	6.15	100
H. B. Miles, Lincoln Southern Kan. washed slack.....	4.40	1000
H. B. Miles, Lincoln nut, 3x1-in., Southern Kan.....	4.10	1000
GENEVA (Girls' Industrial School)		
H. B. Miles, Lincoln Steam, Economy, Mo. or Iowa nut.....	3.90	680
BURKET (Soldiers' and Sailors' Home)		
Coal Hill Coal Co. Routt Co., Colo. lump.....	5.60	250
Coal Hill Coal Co. Routt Co., Colo. nut.....	5.35	250
Whitebreast Coal Co. pea and slack.....	3.40	2500
Lincoln, Neb., Weir City, S. Kansas		
INGLESIDE (Hospital for Insane)		
Whitebreast Coal Co. pea and slack, Weir City, S. Kan.....	3.38	4500
Whitebreast Coal Co., Rock Springs, Wyo., screened nut.....	5.54	500
KEARNEY (State Industrial School)		
W. L. Stickel Lbr. Co. Kearney Hanna nut.....	5.13	90
W. L. Stickel Lbr. Co. Kearney Steam, Hanna slack.....	3.62	1200
KEARNEY (Hospital for Tuberculous)		
W. L. Stickel Lbr. Co. Steam, Hanna slack.....	3.62	400
W. L. Stickel Lbr. Co. Range, Hanna nut.....	5.13	20
LINCOLN (Hospital for Insane)		
H. B. Miles Maitland nut or Canon City, Colo. range.....	5.70	200
Geo. W. Voss, Lincoln Penn. anthracite, egg.....	10.40	10
Whitebreast Coal Co. pea and slack, S. Kans., Weir City.....	3.40	4500
LINCOLN (Orthopedic Hospital)		
George W. Voss, S. Kan., nut, screened.....	3.80	1200
LINCOLN (State Penitentiary)		
Whitebreast Coal Co., Weir City, S. Kan. pea and slack.....	2.85	5450
Whitebreast Coal Co., Rock Springs, Wyo., screened nut.....	5.45	100
MILFORD (Nebraska Industrial Home)		
Coal Hill Co., Routt Co., Colo. lump, range.....	5.85	100
H. B. Miles, S. Kan. screened nut, steam.....	3.84	800
MILFORD (Soldiers' and Sailors' Home)		
H. B. Miles, So. Kan. nut, screened, steam.....	3.84	500
Coal Hill Coal Co., Routt Co., Colo. nut, range.....	5.60	100
NEBRASKA CITY (Institute for the Blind)		
Union Coal Co. Lincoln, S. Kan. mine-run.....	4.19	600
Union Coal Co. Lincoln, Nokomis, Ill. nut.....	4.50	40
NORFOLK (Hospital for Insane)		
Geo. W. Voss Range, nut, Rock Spring, Wyo.....	5.50	50
Whitebreast Coal Co., pea and slack, Weir City, S. Kan.....	3.92	3000
OMAHA (School for the Deaf)		
Central Coal & Coke Co., Range, Ill., 3x6 egg.....	4.89	40
Sunderland Bros. Co., steam, S. Kan., Weir City, slack.....	3.25	1200

Address Secy. Leo Matthews Bd. of Comrs., State Institutions, Lincoln, Neb.